KMEA
ENGINEERING COLLEGE

TECHRONICLE

2022-2023

COMPUTER SCIENCE AND ENGINEERING

KMEA ENGINEERING COLLEGE

Our Vision

To be a center of excellence in academics and research for moulding students to become competent engineering professionals with innovative ideas and dedicated to the upliftment of the deprived socio-economic sections of the society through effective teaching learning process.

Our Mission

M1-To transform budding engineers into employable quality professionals.
M2- To inculcate the need of pursuing higher education among the graduate students so as to
create a society of highly educated professionals.
M3- To impart ethical values and social consciousness among the students so as to create
responsible and socially committed engineers.
M4- To create an excellent academic ambiance which encourages creative thinking, innovations and research.

Dept Of Computer Science And Engineering

Vision

To be a premier department nurturing students to become academically, socially and industrially competent computer professionals and researchers contributing innovations for the betterment of the society.

Mission

M1: To invigorate academic environment by providing an exposure to advanced technologies with an emphasis on basic principles of computer science and engineering.

M2: To enhance leadership, problem solving and entrepreneurship skills and inculcate
social responsibilities and ethical values in students.

M3: To encourage students for pursuing higher education, research and innovations.

Program Educational Objectives (PEOs)

PEO1: Acquire knowledge in subject domain and apply it together with hardware and software skill in the design and implementation of systems which are adaptable to the industrial trends.

PEO2: Socially committed with moral and ethical values in bringing socially acceptable solutions to real world problems for society through innovations and entrepreneurial activities and enhancing the interpersonal, leadership and professional skills to lead a successful career and life.

PEO3: Actively engage in continuous learning process adapting to the current trends by engaging in lifelong learning, thus pursuing higher studies and research in the subject domain.

Program Specific Objectives (PSOs)

Program Specific Objectives (PSOs)

PSO 1: Our graduates will have the ability to apply their knowledge and skills to succeed in their careers and productively engage in higher learning.

PSO 2: Our graduates will function ethically and responsibly, and will remain informed and
involved as fully committed to profession and society.

PSO 3: Our graduates will creatively analyze, design and computationally solve problems of
varying complexity in multi-disciplinary walks of life.

Principal's Message

"A winner is someone who recognizes his God-given talents, works his tail off to develop them into skills, and uses his skills to accomplish his goals"

- Larry Bird

I am delighted to welcome you to the new edition of magazine published by the Department of Computer Science and Engineering. This publication has become a symbol of innovation, dedication, and passion for the ever-evolving world of technology. The idea of creating a departmental magazine is commendable as it will serve as a platform to showcase the brilliant work, research, and literary works within the Computer Science Department. Such a publication will not only foster a sense of pride and unity among the members of the department but also provide an opportunity to share your knowledge and insights with a broader audience.

In today's rapidly evolving world, the field of computer science plays an integral role in shaping the future. As the Principal of KMEA Engineering College, I have witnessed first-hand the remarkable achievements and contributions of the Computer Science Department to our institution. Your dedication has not only enhanced the academic reputation of our institution but also prepared our students for a world driven by technology.
I extend my heartfelt gratitude to the students and faculty whose tireless efforts have brought this magazine to fruition. Your commitment to excellence is inspiring, and I commend your unwavering pursuit of knowledge in the field of computer science.

As we move forward in an era defined by rapid technological advancements, let this magazine serve as a source of motivation and a platform for sharing knowledge and ideas. Together, we will continue to push the boundaries of what is possible in the world of computer science.

I encourage you all to explore the contents of this magazine, celebrate the accomplishments of your peers, and draw inspiration from the innovative spirit that defines our department. I eagerly anticipate the exciting journey of growth and discovery that lies ahead for our Computer Science community.

Warm regards,

Dr. Amar Nishad T M
Principal

HOD's Message

It is with immense pleasure and pride that I welcome you to another edition of our Department Magazine. This publication has always been a testament to the remarkable work and achievements of our Computer Science and Engineering Department.

In the world we live in today, the influence of computer science and engineering is undeniable. It shapes our daily lives, propels innovation, and empowers us to solve some of the most pressing global challenges. Our department has always been at the forefront of this revolution, and our students and faculty continue to make significant contributions to this dynamic field.

In this issue, you will find a glimpse of our department's activities over the past year. Our students have showcased their talents through innovative projects, research endeavours, academic excellence and extracurricular activities.

I would like to take this opportunity to extend my appreciation to our hardworking staff and students for their invaluable support for the preparation of department magazine.

To our students, I encourage you to continue exploring the limitless possibilities that computer science and engineering offer. Use the knowledge and skills you have gained here to create a positive impact on society and drive technological advancements.

I hope you enjoy reading this magazine and gain insights into the remarkable work happening in our Computer Science and Engineering Department. I look forward to another year of progress and success as we continue to shape the future of technology.

Warm regards,

Dr. Rekha Lakshman
Vice Principal,
Head of Department

PROJECTS

When it comes to innovation, an ounce of execution is worth more than a ton of theory

OBSTACLE DETECTION JACKET WITH HEART RATE MONITOR

Afthab Hussain, Althaf Mohammad Babu, Mohammed Razin, Sayeef D.M

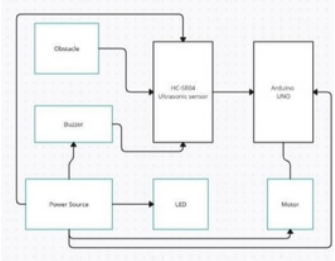
INTRODUCTION

The obstacle detection vest is a breakthrough solution for the blind. It uses ultrasonic sensors to identify obstacles, offering audio or vibrational alerts. The vest also includes a heart rate sensor that monitors cardiovascular health and shares data with doctors for remote tracking. Both systems are seamlessly integrated into the lightweight and comfortable design of the vest. This innovation empowers blind individuals to navigate their surroundings more confidently and enhances their overall well-being. The vest not only aids in avoiding obstacles but also contributes to proactive healthcare management, allowing for timely intervention based on heart rate data. By combining obstacle detection and health monitoring, this vest addresses crucial challenges faced by the blind and offers them greater independence and safety.

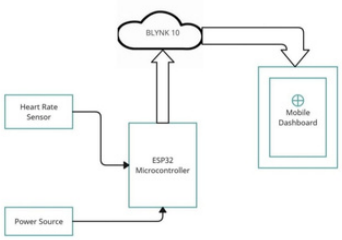
OBJECTIVE

1.Design and develop a vest prototype with integrated ultrasonic sensors for accurate obstacle detection.
2.Implement a real-time audio alert system using buzzers to notify users of detected obstacles.
3.Integrate a heart rate monitoring module into the vest to track the user's heart activity.
4.Establish a communication mechanism to notify healthcare professionals in case of abnormal heart rate readings.
5.Conduct thorough testing and evaluation of the vest's functionality, reliability, and user-friendliness.

SYSTEM ARCHITECTURE



An obstacle detection module in a jacket typically consists of sensors, such as ultrasonic or infrared sensors, integrated into the fabric. These sensors detect objects in close proximity to the wearer and provide alerts through vibrations or sound signals. This technology aims to assist visually impaired individuals by helping them navigate their surroundings more safely and independently.



The heart rate monitoring system module implemented in the jacket is a wearable technology that tracks and records the wearer's heart rate. It typically consists of sensors integrated into the fabric of the jacket, which detect the wearer's heart rate through skin contact. The data is then processed and transmitted to a connected device, such as a smartphone or a smartwatch, where users can monitor their heart rate in real-time. This technology is especially useful for athletes, fitness enthusiasts, and individuals looking to keep track of their cardiovascular health during various activities.

IMPLEMENTATION

The methodology employed in the development of the obstacle detection vest involved a systematic and multidisciplinary approach. The project commenced with comprehensive research to understand the specific challenges faced by visually impaired individuals in navigation and health monitoring. Following this, a prototype of the vest was meticulously designed, integrating ultrasonic sensors for obstacle detection and a heartbeat sensor for real-time heart rate monitoring. The ultrasonic sensors employed advanced distance measurement algorithms to accurately detect obstacles and calculate distances. Simultaneously, the heartbeat sensor captured heart rate data and transmitted it to the Blynk app for remote monitoring. The vest's hardware and software components were meticulously integrated and rigorously tested, involving both simulated scenarios and real-world usage by visually impaired individuals. User feedback played a pivotal role in refining the vest's design and functionality. The resulting methodology is a seamless fusion of hardware engineering, sensor technology, software development, and user-centric design, culminating in a functional prototype that addresses both navigational challenges and health management needs of visually impaired users.

RESULT AND DISCUSSION

The project involving the obstacle detection vest is a remarkable blend of innovation and compassion, addressing the unique challenges encountered by visually impaired individuals. By seamlessly integrating ultrasonic sensors for obstacle detection and a heartbeat sensor for real-time heart rate monitoring, the vest caters to both safety and health management needs.This holistic approach embodies a significant leap in assistive technology, promising enhanced mobility and well-being. The rigorous testing and user feedback validate the vest's practicality and user-friendliness, underscoring its potential to transform the lives of visually impaired individuals. This project symbolizes the power of technology to bridge gaps, fostering greater autonomy, and offering a comprehensive solution that encapsulates both physical navigation assistance and proactive health monitoring.

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NEWS SCRAPER FOR WEB-BASED CONTENT

ABDUL SAMEEU, FATHIMATHUL FAZNABI A N, NIDAL YOONUS P A, SAFA FYROSE P A

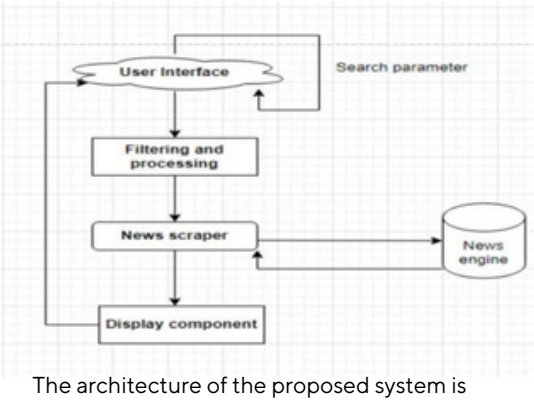
ABSTRACT

The project addresses contemporary challenges of information overload by automating news search and offering personalized news consumption. It aims to create a web-based application using Python and Django to scrape diverse news sources based on user-defined parameters like topic and date. By employing natural language processing (NLP) algorithms, the application will identify pertinent articles aligned with user queries. The system facilitates research, analysis, and informed decision-making by presenting targeted news pieces. Users can interact through an intuitive interface to input search criteria, allowing the application to efficiently deliver organized and pertinent articles. The envisioned outcome is an effective web-based news scraper that harnesses NLP for accurate content identification, providing a time-efficient solution for accessing specific news amidst the vast sea of information.

INTRODUCTION

In the modern fast-paced information landscape, a news scraper is highly relevant, collecting and presenting articles from various sites based on user-defined parameters like date, time, and location. This technology automates news retrieval, saving users time and offering personalized consumption. The proliferation of online news sources makes manually searching for articles inefficient. By utilizing web scraping and natural language processing, the scraper amalgamates articles from diverse sources into one platform. Specific searches allow users to access timely, location-based information, crucial in today's rapid, globally interconnected news cycle. Users can stay informed about local/global events, industry updates, or breaking news without navigating multiple sites. The scraper also empowers users to curate their news, receiving tailored, pertinent articles, enhancing informed decision-making, research, and analysis. Overall, the scraper offers an efficient, personalized news access solution, catering to varied information needs.

ARCHITECTURE



The architecture of the proposed system is shown in the above figure.

The news scraper system architecture consists of distinct components: a user interface (UI), filtering and processing, news scraper, and a display component. Users engage with the UI, providing search parameters like date, time, and location. These parameters guide the system's operation. Filtering and processing use algorithms to sift through scraped news, focusing on user criteria. The news scraper extracts data from different websites, and arrows denote the data flow. The filtered news then reaches the display component, enhancing the user experience through features like sorting and formatting. This architecture efficiently retrieves news from multiple sources based on specific user parameters, delivering tailored and pertinent information. The UI acts as the user entry point, guiding interactions, while filtering, processing, and display components collaboratively manage news retrieval, ensuring relevance and customization.

CONCLUSION

A news scraper that considers parameters such as date, time, and place provides a valuable tool for efficiently gathering and organizing news articles. By utilizing these parameters, the scraper can filter and extract relevant news content based on specific criteria, making it easier to access the desired information. The inclusion of the date parameter allows users to focus on news articles published within a specific timeframe. This feature is particularly useful when researching or staying up-to-date with recent events. By specifying a date range, the scraper can retrieve articles published within that period, ensuring that users receive the most current and relevant information.

The time parameter adds an additional level of precision, allowing users to target news articles based on specific hours or time intervals. This feature can be especially valuable for time-sensitive topics or events that require real-time updates. Users can retrieve news articles published during a particular time of the day, enhancing the timeliness and accuracy of the information gathered. The place parameter plays a crucial role in filtering news articles based on geographic location. Users can specify a particular place, such as a city, country, or region, to retrieve news articles specifically relevant to that location. This parameter enables users to focus on local news, regional developments, or global events with a specific geographical impact, depending on their needs and interests. Overall, a news scraper that incorporates the parameters of date, time, and place provides a comprehensive and efficient solution for gathering news articles. By leveraging these parameters, users can access timely, relevant, and geographically

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Sign Language Recognizer

Athulkrishna, Gokulkrishna, Muhammed Nabhan, Robin C.P

Abstract

According to WHO,more than 5% of world population are deaf and speech impaired. This people lack the amenities which a normal person should own. Their presence are being neglected by technological development in the society. Their opinions and suggestions are not heard and their needs are not really fulfilled. The basic and major reason behind this is lack of proper communication between these people and others.Hand gesture is one of the method used in sign language for non- verbal communication. It is most commonly used by these people who have hearing or speech problems,to communicate among themselves or with normal people.But many common people don't understand the meaning of these signs and fail to realize what they want to express through their signs. Also,sign language learning is not given as much priority as it needs in the education sector.So we require an effective communication channel to recognize sign lan guage and thereby realizing what they are telling us and to make the communication effective. There are many systems and projects which have been developed for this goal, but failed to provide the speed and accuracy.This paved the way for our project 'Sign Language Recognizer' which is a basic system that can recognise basic sign alphabets and a few words effectively.

Introduction

The intent of this project is to provide a digital autonomous platform to the hearing or speech impaired. We have created a standalone GUI where we will collect images of signs from real time camera feed and then the output or corre- sponding meaning will be displayed on monitor. We have used American Sign Language (ASL) for this. About Sign Language Sign Languages are a set of languages that use predefined actions and move- ments to convey a message. These languages are primarily developed to aid deaf and other verbally challenged people. They use a simultaneous and precise combination of movement of hands, orientation of hands, hand shapes etc. There are many sign languages like American Sign language (ASL), Indian Sign Language(ISL)etc. We focus on in ASL in this project. It is the primary language of many people who are speech impaired and is one of several communication options used by people who are deaf or hard-of- hearing. So as to link a bridge between people who can't understand Sign Language and those who speak Sign Language can make use of this system. Figure 1.1 shows the ASL alphabet signs.Need For Sign Language Recognition While sign language is very important to deaf-mute people, to communicate both with normal people and with themselves, is still getting little attention from the normal people. We as the normal people, tend to ignore the importance of sign language, unless there are loved ones who are deaf-mute. One of the solution to communicate with the deaf-mute people is by using the services of sign language interpreter. But the usage of sign language interpreter can be costly. Cheap solution is required so that the deaf-mute and normal people can communicate normally.

Related works

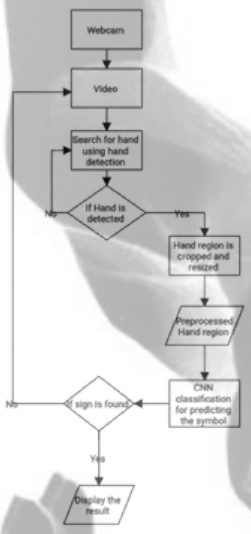
[1] 2012-HAND GESTURE RECOGNITION Rafiqul Zaman Khan and Noor Adnan Ibraheem

[2] Gesture Recognition and Machine LearningApplied to Sign Language TranslationE. Benalcázar 2 and Nelson Sotomayor1

[3] 2014-Real-time computer vision-based Bengali Sign Language (BdSL) recognition system Muhammad Aminur Rahaman

[4] 2017-LITERATURE SURVEY ON HAND GESTURE TECHNIQUES FOR SIGN LANGUAGE RECOGNITION Ms Kamal Preet Kour and Dr. (Mrs) Lini Mathew

Architecture



The architecture described above provides a high-level overview of the components and stages involved in a Hand Sign Translator system. The actual implementation may vary based on the specific technologies, algorithms, and design choices made during development.Figure shows a basic userflow diagram of this project.

Implementation

Image capturing

The mechanism by which images or video frames of hand gestures are captured or acquired for further analysis and interpretation.

Pre-processing

The initial stage of data preparation and manipulation before inputting the hand gesture data into the translation system.

Translate

The process of converting hand gestures or movements into meaningful and understandable spoken or written language.

User interaction & interface

User interaction and interface in hand sign translators involve capturing and recognizing hand gestures through cameras or sensors, then processing the data using machine learning algorithms. The interface could include a live video feed of the user's hands with real-time translation displayed on screen or delivered through audio output. Users might interact by performing specific signs or gestures, and the system responds by translating them into text or spoken language. Additionally, intuitive controls and feedback mechanisms are crucial for a seamless user experience.

Evaluation & Refinement

Gesture Recognition and Machine LearningApplied to Sign Language TranslationE. Benalcázar 2 and Nelson Sotomayor1

Result & Discussion

Testing

Testing is a process, to evaluate the functionality of a software application with an intent to find whether the developed software met the specified requirements or not and to identify the defects to ensure that the product is defect-free in order to produce the quality product. Test techniques include the process of executing a program or application with the intent of finding software bugs (errors or other defects), and verifying that the software product is fit for use. The different levels of testing are as follows: Unit Testing: Unit Testing is done to check whether the individual modules of the source code are working properly. i.e. testing each and every unit of the application separately by the developer in the developer's environment. Here the application is tested module by module. Here image collection,processing etc are tested as units.Figure 5.1 depicts the sample input data given to train the module.Each image should be saved after the defined processing and land- mark detection. Integration Testing: Integration Testing is the process of testing the connec- tivity or data transfer between a couple of unit tested modules. The purpose of this level of testing is to expose faults in the interaction between integrated
units. Here all the unit modules are combined together and are tested. System Testing (end to end testing): Testing the fully integrated application this is also called as an end to end scenario testing. The purpose of this test is to evaluate the system's compliance with the specified requirements. To ensure that the software works in all intended target systems. Verify thorough testing of every input in the application to check for desired outputs. Test- ing of the user's experiences with the application Figure 5.1 shows some test results in real time.
Some signs are very well trained and accurate in recognizing while some other signs have lesser accuracy but it can be improved by training with more datasets.

(a) ASL for C (b) ASL for L (c) ASL for U

Conclusion

The objective of this project was to develop an entirely free robust and ef- ficient real time sign language recognition system for the aid of people who have hard of hearing and speech impaired problems. We developed a very efficient system that can recognise basic ASL alphabets and some common words in ASL. We used python language along with libraries opencv,cvzone,mediapipe,numpy,tkinter, ten- sorflow along with software like Google Teachable Machine to make this project. The results were really good and we got a comparatively better test accuracy.

The future scope of the project includes real time hand sign translation of signs using two hands and signs using motion with improved accuracy and effi- ciency. The project can be expanded to develop systems tha: can do real time sign language recognition during video calls,streaming etc..and systems that can convert the recognition results to speech etc.

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https://www.irjmets.com/uploadedfiles/paper/issue_5_may_2022/24371/final/fin_irjmets1653735979.pdf

COOL GUARD

Mohammed Jazim Salim,Abdullah Naushad,Afzal K N,Adithya Krishna M T

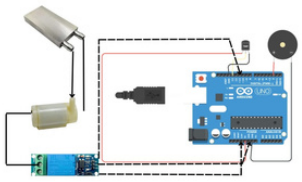
INTRODUCTION

In today's fast-paced technological world, electronic devices have become an integral part of our lives. From. Prolonged exposure to elevated temperatures can adversely affect their performance, shorten their lifespan, and even lead to critical failures.The "Cool Guard" project is an advanced heat sensing and cooling system that addresses the pressing issue of device overheating. By employing cutting edge technologies such as heat sensors, microcontrollers, and liquid cooling.. The heat sensor continuously monitoring the device's surface temperature to ensure that it remains within safe operating limits.The data acquired by the heat sensor is processed and analyzed by an Arduino Uno.One of the primary functions of the Cool Guard system is to alert the user when the device's temperature surpasses the preconfigured threshold.In such instances, an audible beeper is activated by the Arduino Uno.When the temperature crosses the threshold and the alert is triggered,the liquid cooling system springs into action. It comprises a mini water pump, a power supply, and a relay module that enables seamless integration with the Arduino Uno.

OBJECTIVE

Design and develop a heat sensor system that can measure the temperature of electronic devices accurately and reliably. Implement a temperature sensor that can effectively detect the temperature of the electronic device and provide accurate temperature readings. Develop a microcontroller-based system that can receive temperature data from the sensor, analyze it, and make decisions based on predefined thresholds. Set up a warning mechanism, such as a beeper or alarm, to alert the user when the temperature exceeds the predefined threshold. Design and integrate a liquid cooling mechanism that can be activated by the microcontroller to cool down the electronic device when the temperature exceeds the threshold. Test and validate the heat sensor system to ensure its accuracy, reliability, and effectiveness in preventing overheating of electronic devices.

SYSTEM ARCHITECTURE



Above figure shows the system architecture of the 'Cool Guard' system using Arduino UNO.A heat sensor and a beeper is connected to the UNO board to detect the heat and alert the user respectively. A submersible mini water pump is connected to a relay module which inturn connected to the UNO board.Water block which helps in the heat tranfer is connected to the water pump through transparent tubes.

•Temperature Sensor: measures the temperature of the electronic device and provides the temperature data to the microcontroller for analysis.

•Microcontroller: receives the temperature data from the sensor and performs the necessary analysis and control operations.

•Threshold Monitoring: The microcontroller continuously monitors the temperature data received from the sensor. It compares the temperature reading with a predefined threshold value. If the temperature exceeds the threshold, it indicates that the device is getting too hot.

•Alert Mechanism: When the temperature exceeds the threshold, an alert mechanism is triggered to notify the user. In this case, a beeper can be used to produce an audible warning sound.

•Cooling Mechanism:If the temperature continues to rise and hasn't gone down even after the alert, the microcontroller triggers the cooling mechanism. In this case, a liquid cooling system is proposed the cooling system could involve a pump to circulate a cooling liquid, such as water , through a water block. This helps to dissipate the excess heat and lower the temperature of the device.

IMPLEMENTATION

The implementation of the 'Cool Guard' project is a meticulous process involving the careful assembly and connection of its vital components. Beginning with the precise attachment of a heat sensor to the electronic device, this sensor acts as the vigilant guardian of temperature, intricately connected to the core control unit, an Arduino Uno microcontroller. This Arduino is meticulously programmed to continually monitor the device's temperature, comparing it to a user-defined threshold and promptly triggering a beeper alert upon surpassing this limit. Concurrently, the Arduino commands a relay module, linked intricately to a mini water pump, powered by its dedicated supply. This miniaturized pump plays a pivotal role within a closed-loop system, incorporating a specialized water block firmly affixed to the device's surface, adept at efficiently absorbing and transferring excess heat away from the electronic device. The heated coolant, a testament to the system's efficiency, embarks on a journey through a network of carefully designed conduits until it ultimately finds refuge in a designated container. Here, it gracefully surrenders its acquired heat to the surrounding environment, maintaining the electronic device's temperature within safe operational limits. 'Cool Guard' not only excels in functionality but also boasts user-friendliness and adaptability. Users have the power to fine-tune the temperature threshold through the Arduino interface, tailoring the system's cooling response to meet their specific device requirements. Moreover, the Arduino's inherent expandability invites integration with various monitoring and automation systems, elevating 'Cool Guard' from a mere apparatus to an elegant and adaptable solution for preserving and enhancing the longevity and performance of electronic devices under diverse conditions.

RESULT AND DISCUSSION

Cool Guard was subjected to an initial test on a speaker to evaluate its effectiveness in mitigating overheating issues. The test successfully demonstrated the system's capability to actively monitor the temperature of the speaker and respond promptly with cooling measures when necessary.During the test, the Cool Guard system was set up with a heat sensor to continuously measure the temperature of the speaker.Its temperature gradually increased, reaching a critical point . Once the temperature crossed the predefined threshold, the system activated the liquid cooling mechanism.Upon activation, the water pump started pumping water through the water block, effectively cooling down the speaker. Within a remarkably short period, approximately 30-35 seconds, a significant decrease in the speaker's temperature was observed. The cooling mechanism continued to function until the temperature fell below the predefined threshold, at which point the liquid cooling system was automatically deactivated.The successful test results demonstrated the effectiveness of Cool Guard in maintaining the temperature of electronic devices within safe operating limits.

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CRIME PREDICTION

Shamin Irfan, Arshakh Haneen, Afnan Anas, Lazim

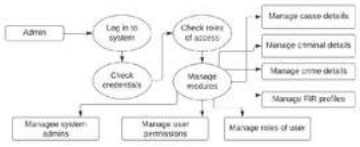
INTRODUCTION

Tourism is widespread and vital, particularly for developing regions, yet its impacts are nuanced. Influxes of tourists can strain small areas, introducing unfamiliar faces to local communities and potentially leading to crime. Conversely, high crime rates can deter visitors, reducing a destination's appeal. Limited research explores this interplay, particularly in specific urban tourist zones. Aiming to address the need for transparent crime data, a website offers accessible information about incidents in chosen areas. Recognizing the importance of safety, it empowers individuals and communities to make informed choices based on reliable data. By summarizing area-specific crimes on one page, the site enhances community awareness, personal safety measures, and collaboration with law enforcement. Geared towards tourists, it helps them appreciate a place's beauty while being mindful of potential risks.

OBJECTIVE

The objective of the Crime Prediction project is to develop a web-based application using HTML, CSS, and JavaScript that enables users to retrieve and visualize crime data for a specific area. By integrating various technologies, the project aims to provide an interactive platform where users can input a location and receive relevant crime information. The application will fetch and display data from relevant databases, presenting crime statistics in a user-friendly and visually appealing manner. The goal is to empower individuals and communities to make informed decisions about safety, enhance awareness about crime incidents in their chosen area, and foster collaboration between residents and law enforcement agencies to ensure safer neighborhoods.

SYSTEM ARCHITECTURE



The architecture of the Crime Prediction website revolves around optimizing functionality and user experience. It integrates various technologies to create a cohesive system that addresses crime prediction needs effectively.

At the core of this architecture are HTML, CSS, JavaScript, and PHP, which collectively shape the user interface and interactive components. HTML provides the structural framework, CSS adds visual appeal and layout, while JavaScript enhances interactivity. PHP acts as the bridge between the user interface and the backend, managing user requests, processing data, and executing predictive algorithms.

Driving the predictive capabilities is a MySQL database, where historical crime data, incident details, and other relevant information are stored. This database ensures efficient data retrieval and storage, forming the backbone for accurate predictive analysis.

The architecture avoids unnecessary complexity by focusing on seamless integration and effective functionality. By combining the strengths of HTML, CSS, JavaScript, PHP, and MySQL, the Crime Prediction website offers an interactive platform that allows users to access relevant crime data, understand historical trends, and make informed decisions about safety.

IMPLEMENTATION

The implementation of the Crime Prediction website involves building an intuitive front-end using HTML, CSS, and JavaScript. User inputs are processed through a PHP back-end that interacts with a MySQL database. The PHP server manages user requests, retrieves pertinent crime data from the database, and applies predictive algorithms if necessary. This data is then formatted and returned to the front-end for visualization using JavaScript libraries. This facilitates the creation of interactive charts and graphs that portray crime statistics. JavaScript ensures input validation, fetches crime data, and updates the front-end in real-time. To enhance security, PHP employs data validation and sanitization techniques to mitigate vulnerabilities like SQL injection. Sensible information, such as database credentials, is safeguarded. Rigorous testing validates system functionality, precision, and user experience. Subsequently, the website can be launched on a web server equipped with PHP and MySQL support. By seamlessly integrating these components, the Crime Prediction website offers users an accessible platform to comprehend crime trends and make informed decisions for safer communities.

RESULT AND DISCUSSION

The website's crime data is cross-referenced against official crime records or law enforcement databases to establish its correctness and comprehensiveness. Any discrepancies or inaccuracies encountered within the displayed crime data are meticulously recorded, and active measures are taken to rectify them.

Performance assessment evaluates responsiveness, page loading speed, and server performance under diverse traffic conditions. Stress testing identifies bottlenecks, optimizing components for smoother user experiences. User experience (UX) evaluation gathers feedback on navigation, data accessibility, and satisfaction to guide design decisions, enhancing interface and interaction. Security audit reinforces measures to safeguard user data and counter cyber threats, ensuring data privacy and integrity. Scalability evaluation gauges the website's ability to manage growing user traffic and data volumes without compromising performance, optimizing for future growth.

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DRIVER DROWSINESS DETECTION AND ALERT ANDROID APP

ABHISHEK ANTONY,SAHAL IBRAHIM, DHANALAKSHMI SASI, MOHAMMED RASAL

Abstract

The primary objective of this project is to create a prototype for a drowsiness detection system. This system operates in real-time by continuously capturing images and utilizing a predefined algorithm to assess the condition of the user's eyes. If the algorithm determines drowsiness, the system issues a warning as needed.Enhancing the functionality, the associated app includes an automated emergency call feature that becomes active once drowsiness is identified. The architecture of the app is composed of several interconnected modules. These modules encompass face detection, feature extraction, drowsiness detection, and the emergency call function. This cohesive integration ensures a comprehensive and effective solution for driver safety.The proposed system aims to address a crucial aspect of road safety by combating the risks associated with drowsy driving. By leveraging real-time image analysis and an advanced algorithm, the system is equipped to promptly identify signs of drowsiness in a driver. The integration of an emergency call feature further enhances the potential to prevent accidents due to driver fatigue.In the current landscape, the intersection of technology and driver safety is of utmost importance. The project 'Drowsiness Direction System' seeks to contribute to this intersection by providing a practical and user-friendly solution. By focusing on real-time monitoring and automated responses, the system has the potential to significantly reduce accidents caused by drowsy driving, ultimately making roads safer for everyone.

Introduction

Countless individuals, including taxi drivers, bus operators, truck drivers, and long-distance travelers, navigate highways around the clock. Unfortunately, many of them grapple with insufficient sleep, leading to perilous situations. Driving while fatigued poses a grave hazard, and a significant number of accidents stem from drowsy driving.To counteract these alarming statistics, our solution involves developing an Android Studio-based system. This innovative system is designed to proactively address the issue of drowsy driving. By employing advanced monitoring techniques, it detects signs of drowsiness in the driver. When these indicators arise, the system promptly issues alerts, ensuring the driver remains awake and attentive. This proactive approach aims to significantly reduce the occurrence of accidents caused by driver fatigue. As the system operates on the Android platform, it offers a user-friendly interface that seamlessly integrates with the driver's experience. By leveraging technology to tackle the pervasive problem of drowsy driving, we aspire to foster safer roadways for all.In a world where vehicular mobility is constant, and road safety is paramount, our Android Studio-based drowsiness detection system stands as a beacon of innovation. By empowering drivers to remain vigilant and responsive, we can pave the way for a future where drowsy driving is no longer a leading cause of accidents on our highways. Navigating highways around the clock, taxi, bus, and truck drivers face danger due to insufficient sleep. Our Android Studio-based system tackles drowsy driving, promoting safer roads globally.

Related works

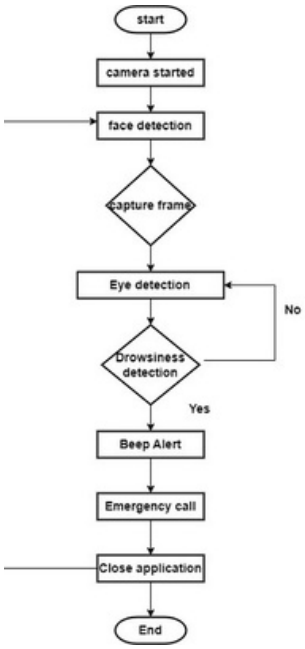
[1] A Method of Driver's eyes closure and yawning detection for drowsiness analysis by Infrared camera

[2] Driver Drowsiness Detection using Percentage Eye closure method

[3] Drowsiness Detection of a Driver using Conventional Computer Vision Appli-cation

[4] Design of Real-time Drowsiness Detection System using Dlib

Architecture



A Driver Drowsiness Detection with Alert System is a safety application designed to prevent accidents caused by drowsy driving. It utilizes computer vision and machine learning techniques to monitor a driver's behavior, such as eye movement, head position, and blink rate. When signs of drowsiness are detected, the system triggers an alert, such as an audible sound or vibration, to wake up the driver and prevent potential accidents. This application aims to enhance road safety by proactively addressing the risks associated with driver fatigue.

Implementation

Our project comprises four modules:

1. Face Detection Module

This module uses computer vision to identify the driver's face, detect facial features, and provide data for drowsiness detection.

2. Drowsiness Detection Module

This module analyzes the driver's facial features, focusing on eyes, using techniques like eye tracking, blink detection, and eye closure duration to assess drowsiness. Machine learning is often used for accurate classification.

3. Alarm Module

Responsible for alerting the driver when drowsiness is detected. It employs methods like audible alarms and vibrations to grab the driver's attention promptly and avert accidents.

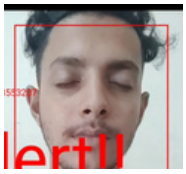
4. User Interface Module

This module offers a graphical interface within the vehicle. It enables the driver to monitor system status, adjust settings, and receive notifications about their alertness level, enhancing interaction and safety.

These modules collaborate to create an effective drowsiness detection system. By integrating computer vision, machine learning, and user-friendly interfaces, the system ensures accurate detection, timely alerts, and seamless driver interaction.

Result & Discussion

In the "Result Analysis" of this project, a comprehensive evaluation of the app's development process was undertaken. Thorough functionality testing verified the successful integration of all envisioned features, including drowsiness detection and emergency call functionalities. Rigorous testing validated the accuracy of the drowsiness detection algorithm and its ability to promptly alert users of potential fatigue. The seamless integration of the emergency call feature, triggered by prolonged drowsiness, demonstrated the app's commitment to user safety. Valu-able user feedback and testing iterations facilitated the refinement of performance,bug resolution, and optimal resource utilization. Although certain technical hurdles were encountered, effective solutions were implemented, leading to enhanced skills and problem solving capabilities. While achieving the majority of its initial objec-tives, future enhancements and user-centered improvements were identified, paving the way for continued development and heightened user satisfaction. In summation, this project's success is underscored by the functional and well-received app,encompassing drowsiness detection and emergency call functionalities,that significantly contributes to a safer and more user-oriented experience



Conclusion

The driver's drowsiness detection app is a crucial tool for countering drowsy driving risks. Using advanced face detection and drowsiness monitoring, it spots early signs of fatigue, a common cause of accidents. Accurate drowsiness detection and prompt alarms make it a dependable safeguard for drivers and passengers. Rigorous evaluations ensure high accuracy, sensitivity, and specificity. Its quick response sends immediate alerts, preventing collisions and saving lives. User input and ongoing monitoring refine usability. The app has become a trusted driving companion, enhancing road safety. Data privacy and ethics are prioritized, ensuring user information remains secure. In a world concerned about drowsy driving accidents, this app offers a significant solution. By curbing risks, it paves the way for safer roads and a brighter driving future in a world concerned about drowsy driving accidents, this app offers a significant solution. By curbing risks, it paves the way for safer roads and a brighter driving future.

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Wellness Hub -A Holistic approach to enhancing health and well-being.

Farsana P I, Natha M Iqbal, Rihana Iqbal, Shirin A S

Abstract

In today's fast-paced and hectic world, maintaining a healthy and balanced lifestyle is often challenging for busy individuals. Wellness Hub is a comprehensive online platform designed to support and enhance the well-being of modern, time constrained people. This website aims to provide a one-stop solution for managing physical, mental, and emotional health through an array of features tailored to meet the unique needs of busy individuals. This website includes the features such that chatbot, reminder, to-do list, diary, notes, stress, fitness cum nutrition and community. This is made using HTML, CSS and Javascript, php at the backend and XAMPP is the software used.

Introduction

In today's fast-paced world, achieving well-being has become essential for leading fulfilling lives. The Wellness Hub project emerged in response to the growing need. The core philosophy of the Wellness Hub revolves around nurturing every aspect of ourselves, recognizing that true well-being requires integration of physical, mental, and emotional wellness. By providing a seamless and integrated experience, the hub seeks to address the challenges of modern living, where health and well-being often take a backseat. The decision to initiate the Wellness Hub project stems from a deep concern for community well-being. Modern lifestyles have led to increased health issues and decreased quality of life due to stress and sedentary habits. The lack of centralized platforms addressing all dimensions of well-being further exacerbates the problem, making it challenging for individuals to find comprehensive wellness resources.

Related work

The Wellness Hub project is a comprehensive initiative designed to create a thriving community space dedicated to promoting holistic well-being among individuals of all ages.Bajaj et al. [1] and Colley et al.[2] proposed nutrition tracking. Ebben et al.[3]and Franzidin et al.[4] proposed fitness tracking. Goshachandra et al.[5] developed an android application o-health.Kassymova et al.[6] proposed stress management activities. Divya et al.[7] and Thompson et al.[8] proposed health applications for elderly people.

System Architecture

The System Architecture of the proposed system is Fig. 1 shown

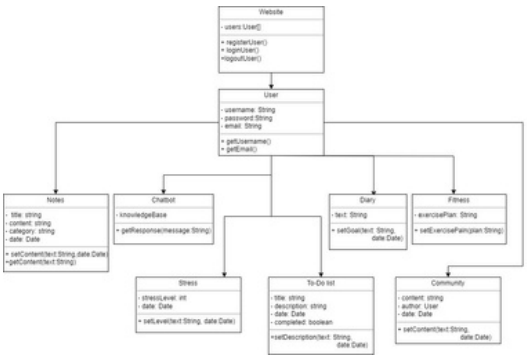

Fig. 1: System Architecture

Login/register:Users provide email and password within the login module.
Chatbot:Engage in insightful conversations and receive motivational quotes based on your mood. Get guidance on hub features.
Notes/ Diary/ To-Do list:Note down important and inspiring thoughts for easy recall.
Fitness & Nutrition:Extends its embrace to encompass various exercise modalities.
Stress Relief: Practice mindfulness exercises and manage stress effectively.
Community: User can share experiences, and offer mutual support on your wellness path.

Implementation

Chatbot Module

Chatbots can solve concerns and queries regarding the other modules. It is implemented using JS.

Fitness and Nutrition Module

Fitness extends its embrace to encompass various exercise modalities.Nutrition serves as a beacon, providing users with the tools essential for strategic meal planning and organization.

Community Module

Empowers users in well-being journey through a connected community & fostering holistic wellness.

Fig. 2: PHP database

Results and Discussion

The application offers a range of functionalities to promote overall well-being and support users in their journey towards a healthier lifestyle. The features include Login/Register, Chatbot, Diary, Notes, To-do list, Fitness, Stress, and Community. As indicated in the table, all these features are currently in a functional state, meaning they are operational and ready for use by users. The responsible validator for each feature is the User, suggesting that the end-users are involved in testing and validating the functionalities to ensure they meet their requirements and expectations.Overall, this wellness hub application appears to be well-equipped to cater to users' wellness needs and foster a supportive and engaging community around it.

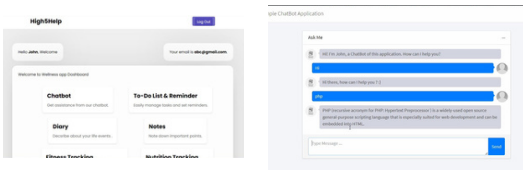

Fig. 3: Home page and Chatbot

Conclusion

In conclusion, the Wellness Hub project exemplifies the strength of a holistic and inclusive well-being approach. Its diverse services have created a transformative space, fostering health and happiness. Participants have embraced well-being, community, and eco-consciousness. The project's success is a result of community collaboration, reflecting collective wellness efforts. As the Wellness Hub thrives, its legacy of improved well-being and a wellness culture persists, inspiring future generations.

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MedSync : App & Device To Promote Medication Adherence

Adith Arun, Mohamed Bilal K H, Muhammed Sakir P N, Rohit Jaison

Abstract

The MedSync project aims to improve medication adherence and organiza- tion for patients and caretakers. The project includes both a mobile application and a physical device for organizing prescribed pills. The app sends reminders at pre-set times to remind users to take their medication, and it also tracks medication history and compliance. The physical device helps to organize and ensuring the proper dose is taken at the right time. The device will have a secure and tamper- proof design to prevent accidental over-dosage or misuse. The project team will work with healthcare professionals and patients to refine and validate the app and device, ensuring that it meets the needs and expectations of users. This project will provide a convenient and user-friendly solution to a common problem, improving the health outcomes of patients and reducing the burden on the healthcare system. With its innovative approach and real-world impact, the MedSync project has the potential to greatly improve the quality of life for patients and their caretakers.

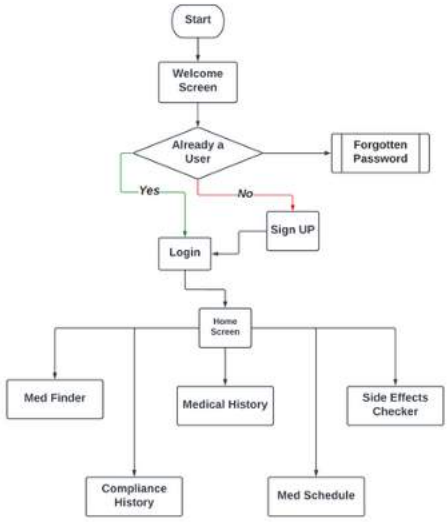
Introduction

In today's fast-paced world, medication management and adherence have become significant challenges for individuals with complex medication regimens. The purpose of this mini project is to develop a solution that addresses these challenges by providing a medicine reminder and compliance tracking system. The project encompasses two main components: a MedSync App and a Medicine Reminder Device. The MedSync App is a mobile application designed to assist users in remembering to take their medication on time and tracking their compliance. The app aims to provide a user-friendly interface that simplifies the medication management process and improves adherence. It serves as a digital assistant, sending timely reminders to users to take their prescribed medications and allowing them to track their medication history. Key features of the app include medication reminders, compliance tracking, medicine information, and medication history. The Medicine Reminder Device is a physical device designed to complement the app and provide a tangible reminder for medication intake. It offers a convenient solution for individuals who prefer a standalone reminder system or do not have access to a smartphone. The device incorporates various functionalities, including medication reminders, scheduling, and alarm customization. The device is designed with simplicity and usability in mind.

Related works

Several mobile applications have been developed to address medication adherence and compliance tracking. Examples of popular apps in this category include Medisafe, Mango Health, and MyTherapy. Medisafe provides personalized medication reminders, dosage tracking, and medication management features. MyTherapy offers medication reminders, symptom tracking, and medication history for users and their caregivers. In addition to apps, various standalone devices are available to aid medication adherence. Pill dispensers, like Hero and MedMinder, are electronic devices that automatically dispense medications at scheduled times, ensuring accurate dosage and timely reminders. Smart pill bottles, such as Pillsy and AdhereTech, use sensors to track medication intake and send notifications to users or caregivers if a dose is missed. These devices are particularly useful for individuals who prefer a physical reminder system or need assistance in managing complex medication regimens.

Architecture



The figure shows the different screens and features of the Medsync app. The diagram starts with a "Welcome Screen" where users can either log in if they are "Already a User" or "Sign Up" if they are new to the app. If a user forgets their password, they can use the "Forgotten Password" feature to reset it. Once a user logs in or signs up, they are taken to the "Home Screen" where they can access various features of the app. These features include "Med Finder", which helps users find and identify medications; "Compliance History", which tracks a user's medication adherence; "Medical History", which stores a user's medical information; "Med Schedule", which helps users schedule and manage their medications; and "Side Effects Checker", which allows users to check for potential side effects of their medications. The user flow diagram provides an overview of the different screens and features of the MedSync app, and how users can navigate through the app to access these features.

Implementation

Requirements Gathering

Identify the necessary functionalities, such as medication schedules, reminders, tracking compliance, user notifications, medication history, and any additional features like dose adjustments or medication interactions.

UI/UX Design

Design an intuitive and user-friendly interface that enables easy medication entry, scheduling, and tracking. Focus on clear medication information display, user-friendly navigation, and intuitive reminder settings.

Development

Develop features such as medication entry, dosage scheduling, reminder notifications, compliance tracking, medication history logging, and any integration with external databases or APIs for drug information or interaction checking.

Testing

Thoroughly test the app's functionalities and interactions to ensure proper medication scheduling, reminder alerts, compliance tracking accuracy, and data synchronization.

Deployment

Prepare the app for deployment by optimizing performance, finalizing content, and adhering to platform-specific guidelines.

Maintenance and Updates

Continuously monitor user feedback, address bug reports, and make necessary updates to improve the app's functionality, performance, and user experience. Regularly update the app with new features, security enhancements, and compatibility improvements based on user needs and platform updates. Throughout the development process, collaboration among the development team, user feedback collection, and adherence to medical regulations was made possible. Additionally, privacy and data security considerations are carefully implemented to protect sensitive medication and user information.

Result & Discussion

The MedSync App and Medicine Reminder Device offer a promising strategy for improving medication adherence. Key benefits include enhanced adherence rates achieved through a combination of app notifications and device reminders. Users commended the app's user-friendly interface for easy scheduling, tracking, and accessing medication information. The option to personalize reminders increased user engagement, while the availability of comprehensive medication details empowered informed decision-making. The app's tracking feature facilitated better communication with healthcare providers, leading to improved care coordination.

Valuable user feedback suggested potential improvements, such as integrating wearables for real-time monitoring and incorporating caregiver support features. In summary, this intervention presents a robust solution to the complex challenge of medication management, underpinned by a user-centric design approach and the integration of digital and tangible reminders. As technology continues to advance, there are promising avenues for further enhancing patient care and medication adherence through continuous innovation and refinement of these tools.

Conclusion

The MedSync app and device offer a comprehensive solution for medication management and adherence. Leveraging mobile technology and user-centric features, the app improves adherence rates with timely reminders, benefiting forgetful users, the elderly, and busy individuals. Compliance tracking aids users and healthcare professionals, enhancing informed decision-making. The app supplies crucial medication information for informed choices and safety.

MedSync's user-friendly interface simplifies medication management, overcoming psychological barriers and promoting well-being. It bridges the gap between prescription and adherence, facilitating better management, improved health outcomes, and a higher quality of life. By fostering patient-provider communication, MedSync enhances collaboration and treatment effectiveness.

In conclusion, the multifaceted MedSync app empowers users with intuitive design and interactive features, leading to enhanced adherence, improved health, and an overall better quality of life.

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CAMPUS CONNECT - ACTIVITY MANAGEMENT WEBSITE

Mansoor Majeed , Shahanaz A H , Aman T F, Fahas Basil K J

Abstract

Campus Connect is a comprehensive web platform designed to streamline campus activity management. This system empowers users to effortlessly create, delete, and manage events, ensuring seamless coordination within the campus community. With an intuitive calendar display showcasing registered events, users can efficiently plan and organize their schedules. Additionally, the integrated to-do list feature aids in task management, while the notes-taking functionality provides a convenient way to record and reference important information. Campus Connect presents an all-in-one solution to enhance campus engagement and productivity, fostering effective communication and collaboration among students and faculty.

Introduction

Campus Connect is an innovative activity management website tailored for campus environments, designed to streamline and enhance the organization of events and tasks. With its user-friendly interface, Campus Connect empowers students and faculty to efficiently create and manage events. Users can effortlessly create and delete events, ensuring a seamless planning process. The integrated calendar displays registered events, offering a clear overview of upcoming activities.

Furthermore, Campus Connect goes beyond event management by offering practical features such as a dynamic to-do list. This feature aids users in prioritizing tasks and staying on top of their commitments. Additionally, the notes-taking functionality allows users to note down essential information, providing a convenient space for storing and accessing important details.

Related work

Hadiwiyanti et al.[1] proposed the implementation of Event Management System -SEMARAK. Study on the campus website construction by Liu. C[2].The construction of a Web 2.0 based website by Shi. Y et al. [3].Othman M et al. [4] proposed the Student management system in schools. College Activity Management System by M A Kumar et al. [5].Valks et al.[6]proposed the paper Towards smart campus management. Reactjs and Expressjs Implementation in PMK ITB STIKOM Bali Activity Management by Anaclaudia F T et al. [7].Edsys developed by Rachel S.S et al. [8].

System Architecture

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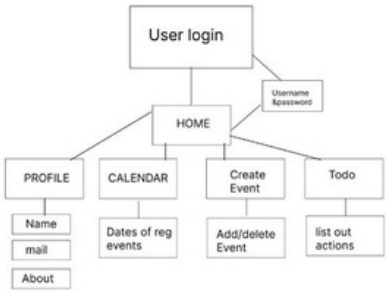


Fig. 1: System Architecture

Event Handling and Notifications

Implement logic to handle event creation, including validation and storing event details in the MongoDB database.Use EmailJS to send event notifications to users who have subscribed to events.

Calendar Display

Fetch event data from the MongoDB database and display it in a calendar format on the frontend.Utilize third-party libraries like FullCalendar to render and manage the calendar UI.

To-Do list & Note Creation

Create API endpoints to manage user-specific to-do lists and notes.
Store to-do list tasks and notes in the MongoDB database associated with the respective user.

Implementation

Calendar View

The calendar display in the Campus Connect activity management website showcases a visually organized layout of events created within the platform. It provides users with a clear overview of upcoming activities, workshops, meetings, and other scheduled events.

Event Creation

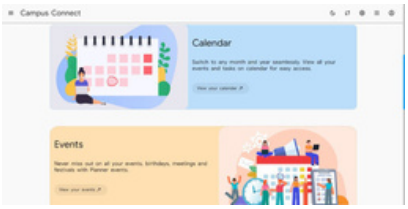
Event creation involves initiating a specific type of gathering, such as a meeting, party, or conference, and defining its date and time. It also encompasses the ability to subsequently delete the event if necessary, effectively canceling the planned occasion.

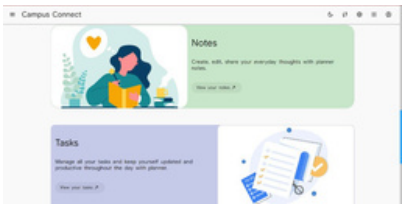
To Do List & Note Taking

"To-Do List" in Campus Connect is a digital tool that helps users organize and manage tasks related to campus activities. It allows users to create, prioritize, and track tasks they need to complete The "Note Taking" feature in Campus Connect enables users to create and manage notes for efficient organization. Users can create detailed notes, delete unnecessary ones, and designate certain notes as important.

Results and Discussion

The successful testing of the final prototype of Campus Connect signifies a significant leap forward in effective campus activity management. Boasting essential features such as intuitive event creation and deletion, a user- friendly calendar showcasing registered events, seamless integration of to-do lists, and convenient note-taking capabilities, the platform is poised to reshape the campus experience. The positive testing results validate its functionality and usability, ensuring a streamlined and efficient solution for students, faculty, and event organizers. By facilitating communication, optimizing time management, and fostering collaboration, Campus Connect holds the potential to elevate campus engagement and productivity. This achievement highlights its capacity to redefine how campuses approach activity organization, promising a more enriched academic journey for all users.





Conclusion

Campus Connect emerges as a pivotal solution for holistic campus activity management. Through its versatile features, including seamless event creation and deletion, an organized calendar showcasing registered events, efficient to-do list capabilities, and convenient note-taking functionality, the platform empowers students to optimize their time, engagement, and collaboration. By amalgamating these tools within a user-friendly interface, Campus Connect revolutionizes the way students interact with their campus activities. It bridges communication gaps, enhances productivity, and fosters a dynamic academic environment. As an indispensable resource, it not only simplifies event planning but also cultivates effective learning and organizational skills.

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AMBULER APP

Abin Eldho, Afina Anwar, Haripriya K S, Rihana Roshan

Abstract

Ambulance plays a very crucial role when an accident occurs on the road network or in case of any medical emergency and the need arises to save a human life. Manual booking of an ambulance at times of emergency can take away precious time as it is a time-consuming process. Furthermore, the delay caused due to the heavy traffic congestion in between the pickup spot and the hospital facility may increase the risk of death for the victim. The system proposed here will help the users book an ambulance easily in an instant. The user will have to select the pick-up point hospital. In case of emergency, the user will have to just select the pick-up point destination and the system will automatically book the nearest ambulance and hospital. Once booked the ambulance operator will receive a notification for confirmation of the booking. The Ambulance driver can view the pick-up and drop location on Goggle Maps. The users will receive the contact details of the driver. The Hospitals can also view the booking history. This is how this Ambulance Booking App will act as a life savior in times of medical emergency. In this system, the User will be able to book an ambulance in for emergency regardless of its size and a random hospital will be allocated to the user. Then the ambulance driver will accept or reject the booking from the user, after accepting or rejecting the status will be updated for the same to the user. Hospital can view the bookings history of the user for that particular hospital.

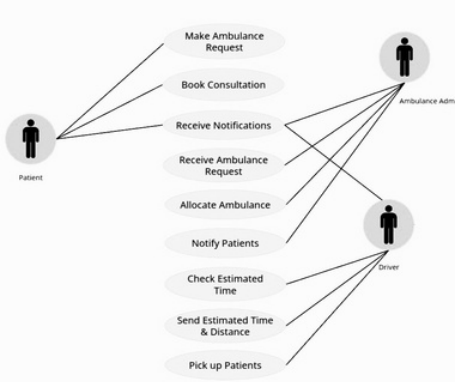
Introduction

As in India, a person dies on every tick of the clock so, we have proposed an application that will provide emergency health response to the patient. With the evolution of technology and medical service, life of human beings have become much easier. Now with AI present in today's generation, effective treatment methods have been found, reducing the risk of many patients. When someone is injured or becomes ill, their health and well being are the top priority. In order to make sure that those in need receive the medical attention they require as soon as possible, ambulance service providers operate around-the-clock booking services. Unfortunately, this process can often be stressful and overwhelming for patients and their families. The main purpose of this project will fill the gap between the patient and ambulance response time. Ambulances are a vital part of emergency medical services. Usually, patients have a finite range of ambulance contacts; thus whenever in an emergency, they find difficulty. With this project, it is proposed that the application would enable the patient to book a ride to the hospital

Related works

[1] Bilal Ghazal, KhaledElKhatib, KhaledChahine, MohamadKherfan Smart Traffic Light Control System,
[2] Adewumi, A., Odunjo, V., Misra, S.Developing a mobile application for taxi service company in Nigeria.
[3] M.A. Alcalde,"New Challenges in the EmergencyCoordinationCenters
[4] Rehka Jadhav, Jwalant Patel, Darshan Jain, Suyash Phadhtare Department of Information Technology G. H. Raisoni Collage of Engineering Technology, University of Pune, Pune

Architecture



The system operates by having three important actors as users – the patients, the administrator and the Driver. With the application installed on the patients' phone, he or she can interact with the system to either book for consultation or request for ambulance service. For the ambulance request, information such as name, the physical address and the nature of the emergency is given. On the other hand, upon receipt of the request, the administrator uses the information stored in the cloud to allocate the optimal and available ambulance to attend to the patient as well as notify the available driver immediately. On receipt of the notification, the driver then uses the available information via the Google Maps integrated with GPS service to estimate the best route to take, the distance between the current location and the patient's location as well as the estimated time taken to get there and pick up the patient.

Implementation

User Authentication and Login

This module is responsible for handling user authentication and login functionality. It includes creating a secure authentication system using Node.js and MongoDB to manage patient and driver accounts. Users can log in using their credentials, providing access to their respective app interfaces.

Emergency Request Handling

This module focuses on the core emergency functionality. Once a patient is logged in, they can trigger an emergency by pressing a designated button. When activated, the app uses Mapbox and JavaScript to determine the patient's location and display the nearest available ambulance on the map. This involves integrating the map API and implementing the logic for real-time location updates.

Driver Availability and Dispatch

The Driver app module allows drivers to manage their availability status. They can switch between online and offline modes, indicating their readiness to accept emergency requests. This module involves creating a user interface for drivers, integrating the availability toggle, and establishing a mechanism for receiving and accepting emergency dispatches.

Payment and Transaction Handling

The payment module streamlines the payment process. Since the app employs dummy cash transactions, this module mainly involves UI/UX development. It showcases the payment method to patients without actual payment gateways, ensuring a simple and straightforward process.

Result & Discussion

People in our city have limited access to hospitals and health clinics, despite the life-threatening severity of the problems that necessitate extreme measures. Communication and transportation, we discovered, are elements that impact having access to the healthcare system, particularly in the face of extremity. It's difficult to call emergency centers when the roads are terrible or the addresses are irregular, resulting in ambulances not arriving on time and maybe deaths. Given the critical environment, the system we present in this research is capable of providing solutions to the problems that those townies encounter. The system uses Android mobile operations technologies, the abundance of mobile phones in every household, and pall storage technology to provide cost-effective services for pastoral problems. The key advantages of this method are improved communication between cases and healthcare personnel like as ambulance drivers, paramedics, and nurses among others. By providing position-based ambulance transportation, it lowers the time spent in the ambulance and lengthy distances in a sanitarium. It's easy to use, stoner-friendly, and requires registration. Furthermore, instead of dialing emergency centers, cases will be able to send online dispatches that are in real-time mode. The system does not require advanced computing skills, but the person must be able to operate the phone and write his or her name and details.

Conclusion

As of now, there are only a few projects working to aid ambulance and emergency facilities to needy. With kerala, "Dial108" has spread its roots in ERA. Ambular is an advancement to such existing projects with a userfriendly and blood inventory facility. Our summing-up is, we have developed our project to handle emergency health situations and to evacuate the patient to a nearby and communicated hospital. Ambulance service system can have multiple functions and also provides more benefits to users.With increased features like tracking of ambulance lively. This will help the admin to track the ambulance driver. This helps the user and ambulance driver to make more comfort. The scope of an ambulance booking app is to provide a user-friendly platform that allows individuals to request emergency medical transportation services quickly and efficiently. The app should offer user registration and authentication for secure access, enabling users to select from a list of available ambulances with essential details. Integration of GPS technology is vital to track the user's location and provide real-time ambulance tracking for ETA updates. An emergency call button should be prominently featured for critical situations. The app should support multiple payment options and allow users to store emergency contacts for notifications. Feedback through reviews and ratings can help improve the service.

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TECHTRIPSTER

Afnitha K A, Fathima Fousana M A, Simna K N, Shilpa T S

ABSTRACT

At present, tourists and travellers waste a lot of time to plan their trips, all options available to plan their trips right now does not actually provide a cost effective and all the alternatives to their travel. In this context, this application aims to identify the main computing needs to support the development of interest based mobile application model for tourists. This project proposes a system that can automatically shows the places, travel routes, different modes of transport available and personalized plan for the user. This application also leads to quicker decision making with respect to places to visit. This system is basically used to help a traveller who is new to the city or anyone who wants to explore a city within a specific time period.

INTRODUCTION

In general tourists and travellers waste a lot of time planning and deciding their trips to achieve maximum satisfaction. In this context, this website aims to identify the main computing needs to support the improvement of tourist point of promotion for the traveller, by the means of an easy to use website. Normally, most travellers like to visit the famous sightseeing spots as well as local charms unique to that place. To achieve this, we propose a system that can automatically show a travel route and plan for the user. This website also leads to quicker decision making with respect to places to visit. This system is basically used to help a traveller new to the city or anyone who wants to explore a city within a specific time period. The user is supposed to enter his/her interests and preferences while signing up. Once the account has been created, the user can choose the location manually or let the system detect his/her current location as the starting and ending point of the trip. Then, the start and end time of the trip must be specified by the user. Since all the trips of a user will be stored, he/she can also view the previous trips. The system makes use of the Google Maps API to get all the places around the selected location with all their information.

RELATED WORK

Amal Davies et al.[1] proposed Travel And Tourism Management. Aniket Patil et al.[2] and M.U.E Wijesuriya et al.[8] proposed mobile based guide applications. Kanak Divya proposed the paper Study and reviews of smart city based tourism mobile app. Intelligent Tourism Personalized Recommendation Based on Multi-Fusion of Clustering Algorithms by HongYan Liang. Designing Experiential Websites in Tourism and Hospitality: A Customer Centric Value Approach by Marianna Sigala.Priyatam et al. [6] and Teresa Borges Tiago et al.[7] proposed papers based on travel and tourism.

SYSTEM ARCHITECTURE

The System Architecture of the proposed system is Fig. 1 shown

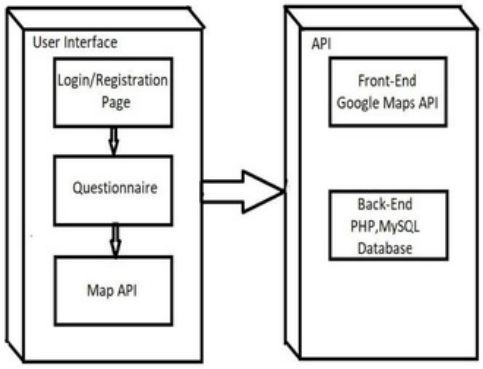

Fig. 1: System Architecture

Login/register page : The user can login into the website using the username and password.

Questionnaire : certain questions are asked to the user.system then smartly analyses it and creates a schedule for traveller

Map Api : System shows the route map of places selected by the user.

IMPLEMENTATION

Login/Register module:

The user first register with his/her personal details. If it is an already registered user , then it goes to the login module.If the user is not a registered user, then the login fails.So, the user has to register with his personal details.

Questionnaire module:

This module will provide a list of questions that is required for the system. The aim is to know the likes and dislikes of the user. A user friendly questionnaire smartly analyses user's preferences.it also helps in compartmentalizing needs .

Itinerary module:

Based on the parameters obtained from the previous modules the system smartly analyses through the user's preferences and prepares a schedule which consists of the user's places of interest, located within proximity of the user's current location and the provided number of days.

Route Map module:

The system considers GPS data in real time and calculates the distance based on the latitude and longitude of the places which has been predefined in the database from the user's current location. The system makes use of the Google Maps API to get all the places around the selected location.

RESULTS AND DISCUSSION

This project proposes a system that can automatically shows the places, travel routes, and personalized plan for the user. This application also leads to quicker decision making with respect to places to visit. This system is basically used to help a traveller new to the city or anyone who wants to explore a city within a specific time period. System will also collect feedback from different tourists and will be helpful for users planning a trip. These mentioned features will save enormous time of user and will be helpful in organizing a destination place. As a result we witness the dawn of an age of smart tourism. The future scope of this application will be users might be fully dependent on this type of application while planning a trip as time will be most concerned factor in individual's life. Also it will be responsive and more dynamic with machine learning concepts.this application also aids the tourist agencies in a way that it helps their clients to select places.

CONCLUSION

Since travelling is one of the important aspect today, it is very necessary that proper planning need to be done beforehand in terms of time management. Most people without using the latest technology waste a lot of time just planning trips. So, an application like Smart City Traveller really helps tourists to utilize their precious time to the fullest and also enjoy their trip at the same time This project mainly focus on developing a web application that helps the travellers to plan out their vacations in most efficient and time saving manner.by this project, we propose the design and implementation of a web application called TECHTRIPSTER, with which mobile users can get tourism guidance information they need anytime and anywhere to plan out their trips. By this web application users can get an attractions detailed information. User can select his likes and dislikes through the questionnaire provided. This project aims for the user gratificatioin in searching about the places to visit and providing more flexibility to the user

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ORPHANAGE MANAGEMENT SYSTEM

HAMNA N A, MUHSINA N Y, RIYA FATHIMA

Abstract

The Orphanage Management Website project aimed to develop a user-friendly platform that facilitates donations and sponsorships for orphanages. The website consists of two modules - admin and user. The admin module allows administrators to manage user accounts, oversee donations, and approve sponsorship requests. On the other hand, the user module enables individuals to register, donate various items, and contribute financially to support school education for orphaned children. The website provides users with options to sponsor a child and donate according to specific requirements. The website will serve as an interactive interface, enabling donors to make contributions and sponsors to engage with the children they support. By providing transparency and efficiency in the donation process, the website seeks to make a positive impact on the lives of orphaned children and foster a sense of community engagement.

Introduction

The project aims to create an online platform connecting orphanages with potential donors, making it easier for people to contribute. This website allows users to search for orphanages, donate securely, and track their impact. It addresses orphanages' challenges in donation management and offers transparency. Admins organize online events, and donors can contribute multiple times, register for events, and access a secure login system. The website serves as a bridge between donors and orphanages, facilitating communication and collaboration. Users can easily find orphanages, and the platform ensures the security of contributions. Admins can manage users and donations. Together, they create a brighter future for vulnerable children, spreading kindness without borders.

Related work

Phitsa Mauliana et al.[1] introduces web- based orphanage fundraising information system and Kuupole Erubaar Ewald et al. [2] introduces digitalized orphanage home management system consisting of mass data entries. Nilesh Gupta et al.[3] introduces a orphanage management using IPFS and hyperledger fabric. Pawar et al.[4] introduces a modern donation hub and S.Muthuselvan et al. [5] introduces a location based orphanage finder application for google android phones. Mrigank Mathur et al.[6] proposed a 'Aahar - Food Donation App' that is an android mobile application.

System Architecture

The System Architecture of the proposed system is Fig. 1 shown

Fig. 1: System Architecture

An architecture diagram visually represents a website's components and their interactions, aiding in understanding and communication during development and maintenance. It encompasses client-side (frontend) and server-side (backend) elements. The client-side includes the user's web browser, HTML for structure, CSS for presentation, and JavaScript for interactivity. The server-side comprises a web server handling HTTP requests, an application server executing server-side code (e.g., PHP or Node.js), and a database server for data storage. Users access the website via their browsers. PHP serves as the backend language, and MySQL manages the database. The login page leads to a page for donations and sponsorships. The process involves the browser sending HTTP requests to the PHP-based server-side, which interacts with the MySQL database, processes requests, generates responses, and sends them to the browser. The architecture diagram, as in Figure 4.1, illustrates this system. Users first register with personal details stored in the database, enabling subsequent login using provided username and password.

Implementation

Login/Register: In this module the user first register with his/her personal details. If it is an already registered user, then it goes to the login module.The user can login into the website using the username and password.

User: Users visiting the website can perform various actions like donation, sponsorhip activities etc. Users can donate items to the orphanage by providing necessary details and selecting the items they wish to donate.

Admin: The admin has access to additional functionalities for managing the website and orphanage. The admin can add, modify, or remove items that can be donated by users.

Results and Discussion

Our desired outcome is for our system to facilitate charitable donations and sponsorships for orphanages. Through careful design and integration of various functionalities, we have successfully created a user-friendly platform that facilitates charitable contributions and sponsorship programs. Users can easily make monetary donations, choose specific items to provide, or sponsor a child's education, healthcare, or other essential needs. Challenges faced during implementation included data privacy and security concerns, as well as the need for ongoing maintenance and updates. We addressed these challenges by implementing robust security measures and regular system updates. Overall, the success of our system in enabling donation and sponsorship activities in orphanages demonstrates its potential to make a meaningful and lasting impact on the lives of vulnerable children. By continuing to refine and improve the platform, we hope to create a more inclusive and compassionate world.

Conclusion

The web-based platform we have developed is a comprehensive and efficient system that revolutionizes orphanage management, donations, and sponsorships. With its user-friendly interface, the platform caters to admins, users, and donators, providing them with easy access to essential functionalities and data management tools. Our platform is a testament to the power of technology in making a difference and contributing to a brighter future for orphanages and their children

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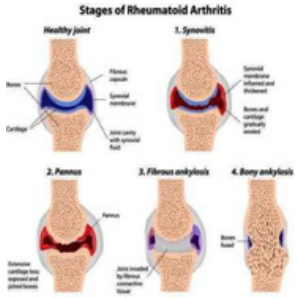
Arthritis detection app using python-Django framework

Dr.Rekha lakshamanan,Pavan S Kumar ,Aljiya V.A, Safiya Safarain V.A, Ashna Abubacker

Introduction

Rheumatoid arthritis is a chronic inflammatory disorder affecting many joints, including those in the hands and feet. In rheumatoid arthritis, the body's immune system attacks its own tissue, including joints and in severe cases, it attacks internal organs.When it comes to managing rheumatoid arthritis (RA), things can turn complicated pretty quickly. Trying to keep detecting the presence of RA, where the users put in information which differs for various person can be more useful. The project aims to design and develop a smartphone application for detecting RA using python - Django framework,deep learning and image processing techniques.



Proposed system

In the proposed application the users input information as x-ray image and medical blood parameters which varies for different person, after processing and defection the app is done , it will give the result as negative or positive where positive represents the person is having RA and opposite in case of negative. The app also track the level of pain in affected area and result in how badly it hits. This means that a score in the 1–5 range corresponds to mild level, while scores of 6 and 7 represent moderate level and a score in the 8–10 range corresponds to severe level. The app aims to avoid the waiting of doctors appointment so that the patient can start treatment in their own way as soon as possible. A big part of what the app do is keeping a daily detection of RA and give an accurate result.

Problem statement

- None of the existing system have the facility to provide the test result of rheumatoid arthritis
- The existing apps for arthritis are for tracking pain and daily symptoms
- It is possible to test the presence of arthritis in laboratories, but it will be more helpful with the use of an app
- In this world full of technologies and applications , an app that detect arthritis is required in which more features can be added up during implementation

Objective

A user-friendly app that provide every possible features to detect rheumatoid arthritisAbig part of what the app do is keeping a daily detection of RATheapp aims to avoid the waiting of doctors appointment so, that the patient can start treatment in their own way as soosas possibleThe app can be installed in both iphoneand android systemsHumansdoesn't require any special skills to use the app as it is user-friendlySavetime and money by avoiding hospital consultation

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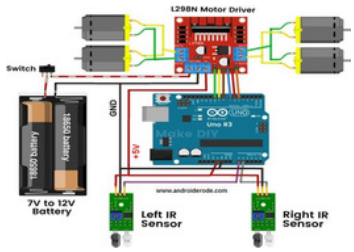
PSS MARK 1

PROF.SELIN .M,SHERIF RAHIM,POOJALAKSHMI,SAHIL M.S

INDRODUCTION

Aselfdrivingcar capable of sensing its surrounding and moving on its own through traffic and other obstacles with minimum or no human input. It was successfully manufactured by TESLA. These type of car makes transportation more safely and efficiently is increased and the human errors can be eradicated whilst the drive is made to its best. This project mainly focusing on a self driving car which is devolpedbased on dynamic line tracking and line following of a road .And also a feature of this car is detecting the obstacles in front of it



PROBLEM STATEMENT

- One of the biggest problems with self-driving cars is that they may not be entirely safe. A driverless vehicle needs to process its surroundings to make judgment calls using perception and decision-making technology.
- In the instance of self-driving cars, drivers may see their driving skills degrade over time.
- Creating (and maintaining) maps for self-driving cars is difficult work
- Compounding these challenges is the fact that weather still poses a major challenge for self-driving vehicle.
- Another big obstacle for self-driving cars isn't technical —it's political. Before selfdrivingcars can hit the roads, regulators are going to have to approve them for use.

OBJECTIVE

- This project mainly focusing to solve the known risk factor of an self driving car such as lost of navigation due to extreme weather condition.
- Malfunctioning of the whole system due to technical errors which may lead to accident, so by implementing line follower robot to self driving car even if the system fails the chance of accident can be reduced.
- Sometimes a self driving car finds it difficult for taking its tight curve .but the with help of line follower robot the curves can taken easily.
- Currently line follower robots are used in automated guided vehicle (AGV) for industrial purposes.butthey use magnetic strips for following therefore it can only travel till the magnetic strip ends.herewe are using light sensor for travelling so that any contrast colouredline can be used for travelling.

COMPONENTS USED :

- Arduino Nano
- L298NMotorDriver
- TT Gear Motor and Wheels Full Set
- RubberWheels
- TT gear motor (4X)
- IRSensor (2X)
- UltrasonicSensor
- 18650 Li –ion Battery (2x)
- BatteryHolder
- 5mm Acrylic Sheet –(Local store)

EXCEPTED OUTCOME

- Currently line follower robots are used in automated guided vehicle (AGV) for industrial purposes.butthey use magnetic strips for following therefore it can only travel till the magnetic strip ends.herewe are using light sensor for travelling so that any contrast colouredline can be used for travelling.
- To make the self driving car more safe and convenient we use line following.
- This enables us to take tight turns in bad weather.
- Even of the navigation map goes into an error state, the car will continue to follow the line.

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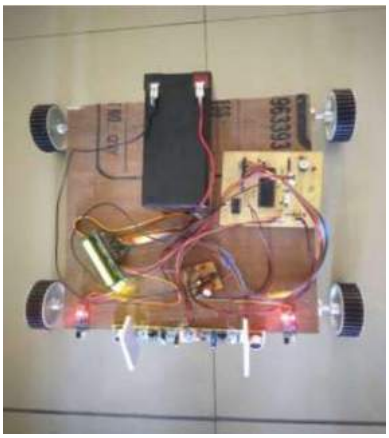
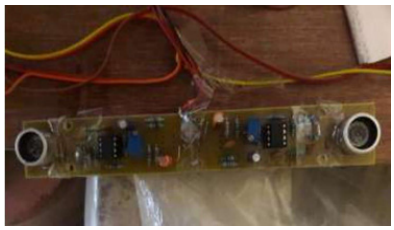
AUTOMATIC LUGGAGE CARRIER

Ms.Lija Joy,Amal Davis,Anas Hussain,Arun Dath,Muhammed Shiras

Introduction

Automatic or automation means, as by electronic devices, reducing human intervention to a minimum. This will reduce the time delay and human efforts in luggage management system. Now a days-everybody uses a luggage for travel especially to airport all of them dragging out heavy luggage. Passenger need to carry his /her own luggages. This is very slow and expensive process. And it becomes hectic journey. This problem can be overcome by automatic luggage follower system. It is nothing but smart luggage. It reduces the time delay and human efforts in luggage management. For the implementation of design ultrasonic sensor and dc motors plays important role. For the anti-theft tracking purpose GSM and GPS are used. Whenever the bag is lost, the user can access the location by GSM and GPS tracking system.Another feature in this system is dry batteries. Generally lithium batteries are used for battery pack. But lithium batteries catch fires, when it punctured. So it is harmful for system. And dry batteries are rechargeable and easy to carry.

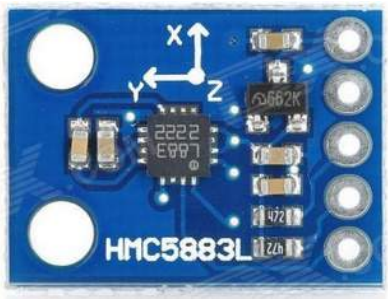




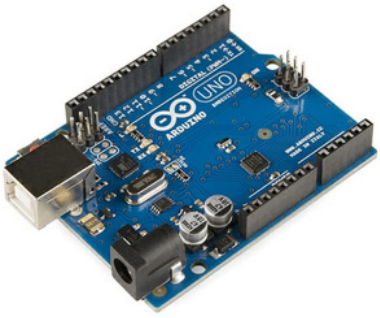
Demo hand device

Problem Statement

In existing luggage carriers we need to apply our external pressure for moving or carrying the luggage from one place to another.It is not possible for the peoples of all age groups.This may even lead to back pain.So to reduce this problem we are developing a smart and automatic luggage carrier.



Compass module



Arduino uno

Proposed Methodology

The proposed system consists of two components.Oneis the hardware component and the other one is the software component.Thehardware component consists of Arduino Uno,DC motors,Power Supply,Compass module,GPS module,Motordriver and a Bluetooth module.

The software component consists of Blink software used for controlling the luggage carrier through the mobile app installed on the mobile phone.

Summary

In day to day life when we are traveling luggage carrier is big problem. Using this technique we can overcome this problem. A security system that the user can be free of worries of his or her luggage being stolen or left behind. In future we will add features like headphone points, USB point, Wi-Fi technology, fingerprint system for security purpose. And focus on to make less expensive and easy to handle.

Objectives

- A luggage easy to be carry and to be manageable by any person.
- Amoreway tocarrytheluggageincaseofanyproblem
- Comfortable cost according to everyone's perspective.
- Aluggagewithanattractiveandinnovativeexteriordesign.
- Asecurity system that the user can be free of worries of his or herluggage.

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AN AUTOMATIC QUALITY CHECKING SYSTEM FOR CRICKET BALL

Adila Abdul Salam, Ayisha Sabu Hakkim, Ejas Abdul Salam, Gopika.S

INTRODUCTION

- Cricket is the top among popular sports.
- Many incidents happen in cricket matches such as injury , fight between the team.
- The worst case is where the ball exploded as the ball thrown.
- To reduce this problem and ensure the quality of the cricket match , we proposed a system for cricket ball quality checkings

Figure 1.Cricket ball throw

PROBLEM STATEMENT

The best of our knowledge in the cricket industry, there are not enough research works which focus on the defect detection. Therefore we establish an automatic inspection system based on machine vision techniques for cricket ball defect detection.

Figure 2. Defect ball

OBJECTIVES

We propose an end-to-end objection detection approach based on the Transformer model to simultaneously detect and classify the defects for cricket balls. The experimental study indicates that our model can achieve satisfying results and possess much higher efficiency in contrast to human inspection.

PROPOSED SYSTEM

- The introduction of image processing to check the quality of the cricket ball is one of the solution to ensure the cricket specification meet their standard.
- After checking the defects of the cricket ball ,there are three boxes which is classified as less defect, high defect and good quality .
- This project is expected to reduce injury in cricket match and also ensure the quality of the ball is guaranteed.

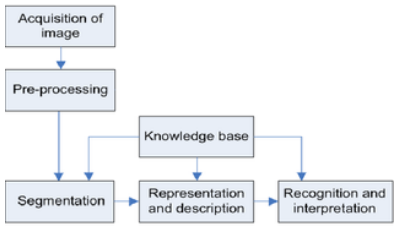

Figure 3. Stages of image processing

Figure 4. Image processing on balls

CONCLUSION

This system reduces the time for finding the defects of the cricket ball.To reduce the false positive alarms caused by the fixture, we will explore the material which is less prone to leave stains and filaments on the fixture.Cricket match will be conducted smoothly.

ACKNOWLEDGMENTS

We are grateful to Almighty God and especially grateful to our project guide,Ms. Elia Nibia for her valuable advices.We are also grateful to our project coordinator Mr.Ajmal E.B and other individuals associated with the project for their ongpoing support.

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SMART IGNITE-SMART COOKING SYSEM

Sanjay Raj , Amrutha P S , Abhijithjana, Sona Lazar

INTRODUCTION

- Nowadays, people have a hectic schedule and need to spend an amount of time in the kitchen itself.
- We propose a smart system that can reduce human interactions in the kitchen.
- Goal is to develop a smart cooking device for the kitchen that ensures safety, an automated cooking environment, and reduces fuel wastage.
- Also concentrates on additional protection.

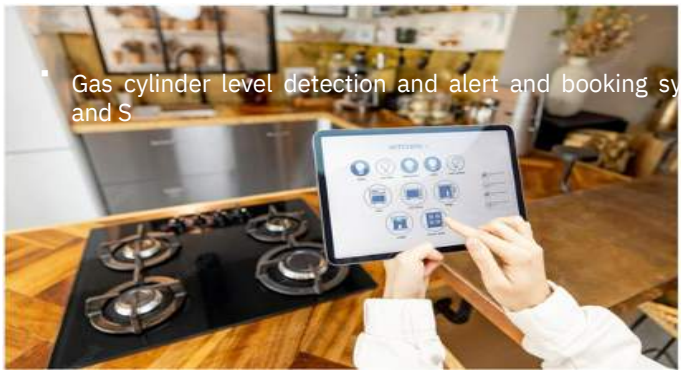
OBJECTIVES

- Helps beginners to cook food without anyeffort.
- Virtual assistance can be used to control the system in order to control the flame withouttouching
- Security is enabled for parental control for unwanted access ofchildren
- Makes cooking easier with the help of cooking presets and an automatic flame-controllingalgorithm
- Over-burning of dishes etccan bedetected and prevented High
- safety feature ensures safety in cooking while dealingwith theflame

The proposed system is a hardware IoT system. With smartphones, we can adjust the flames and cooking time without even touching the stove. Like a micro-oven, a timer system is also available in this system. The system will auto-detect some common items for cooking and set timers for that item by itself, to some extent. Users can also set a timer or adjust the timer as well using an interface. Here also include a Bluetooth system for controlling the burner by voice. When smoke is detected, the temperature is high from its range while humans are not around, and if there is any unnecessary gas amount in the kitchen, a safety module will turn on automatically and an alert is produced. The main advantages of the system are time-saving and easy cooking.

KEY FEATURES

- Safety and security
- Alert System
- Gas Cylinder Level Detection and Alert and Booking System
- Software Based Control
- Temperature Sensor
- Smart Voice Assistant
- Manual/Automatic Methods
- Cooking Presets
- Weighing System
- IOT Based Control
- Gas Leakage System
- Fire Extinguishing Facility
- Flame adjusting and Knob Control
- Customized Design
- Smart cooking menu



ACKNOWLEDGEMENT

We are grateful to Almighty God and to all those who assisted us in these early stages of the project. We are especially grateful to our project guide, Ms. Vidya Hari , for her invaluable insights and advice. We are also grateful to our project coordinator Mr. Ajmal E B, HOD Ms. Selin M, and other individuals associated with the project for their ongoing support..

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Image Processing And DL Based Home Automation And Security System

Fathima Farhana ,Anjum Fathima ,
Mohammed Fazeem Harees, Muhammed Asharul Hashim

Introduction

- its often thefts & burglaries happen around the globe.
- The objective is to provide a security system aligning with the concepts of home automation.
- The system combines two powerful technologies : Deep Learning & Image processing.
- The system can minimize the theft frequency by detecting & setting off alarms by recognizing unauthorized persona.

Objectives

- To improve the existing security measures.
- Enable fast recognition of the personnels whose images are captured.
- Provide efficient alarm setting to notify theft attempts.
- Notify public officials about the theft as soon as it occurs.

Proposed System

- The security system involves face recognition algorithms to identify the person from the image and it is connected to the door.
- Sends notification to the owner regarding change in the state of security

Problem statement

- Many cases of thefts & burglaries occur nowadays.
- Privacy and security are the most important aspects of all humans.
- We have noticed the existing security measures lack the ability to detect the persona it is interacting with and it is also used to recognize who is entering through main door.
- A robber cannot be easily identified with the existing system.
- Alarm systems are not efficient.

Expected Outcome

- Improved security system with facial recognition technology. Capturing image of the person when the alert sets off and sending it to the owner.
- If the image is against owner's interest,he/she can report to police.
- Enables to inspect from a long distance.

Acknowledgment.
We are grateful to Almighty God and to all those who assisted us in these early stages of the project. We are especially grateful to our project guide, Ms. Abeera .V.P., for her invaluable insights and advice. We are also grateful to our project coordinator Mr. Ajmal E B, HOD Ms. Selin M, and other individuals associated with the project for their ongoing support.

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Automatic Polyp Detection In WCE Using Deep Learning

POOJA M P

INTRODUCTION

- Gastrointestinal endoscopy is the primary method for detection and removal of polyps.
- Earlier detection and removal of polyps plays a crucial role in gastric cancer prevention.
- A fully automated DCNN model can realize real-time polyp detection.

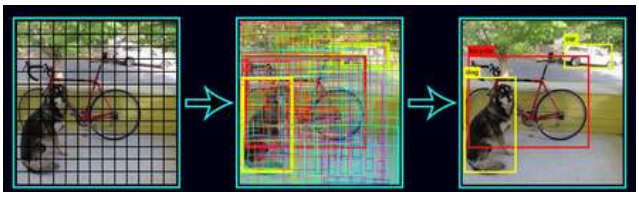

Figure 1. Object Detection Technique Using YOLO

PROBLEM STATEMENT

- Mortality rate due to undiagnosed colorectal anomalies are 91%.
- It is a challenging and time consuming task for physicians to detect various types of polyps manually and rather existing techniques are less precise and reliable.

PROPOSED SYSTEM

- A deep learning based method for automatic polyp detection.
- YOLO (you look only once) model based on the deep convolutional neural networks is to be used.
- The model is to be trained and tested in a dataset of images obtained during WCE. Out of the dataset obtained some are used for training and others for testing.

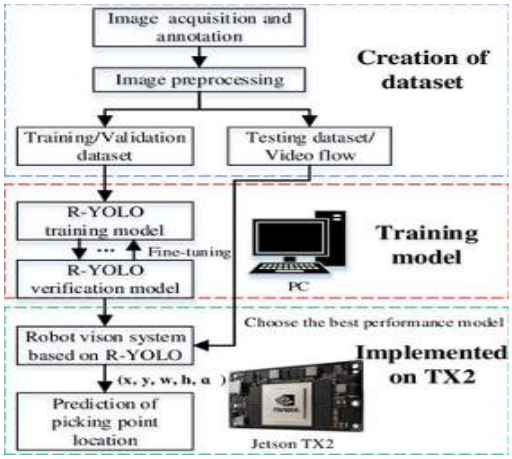

Figure 2 : Example of a system design for Yolo scientific training.

SYSTEM DESIGN

- YOLO model based on deep convolutional neural network is used.
- System design initially involves setting up the YOLO algorithm using C and dataset.
- Again it is required to train the model using the dataset obtained which involves convertion of the annotations to YOLOV5format.
- Further the system should be again to partition the dataset and test the annotations. Next it involves taking inferences if the parameters used and further computing the mAP on the test dataset using Python modules.
- Finally the system when given a input identifies whether it's a polyp or not and also measure the accuracy value for it be a polyp like a notification.
- If polyp it returns a YES value with the amount of precision for it to be one and NO if not one.

EXPECTED OUTCOME

- Expecting experimental results with 90 – 95 % accuracy levels.
- Using the Intersection Over Union (IoU) technique of YOLO the mAP can be ranged from 80 to 90% from the normal levels.
- Increased recallrates.
- Higher precision and accuracy.

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WASTE PICKING ROBOT

Abida P A, Nourin K S, Rafna Salam, Sherfina Ashraf

Introduction

Rising of garbage in the world poses serious threats to human being. It may increase the amount of waste generated by an individual in each minute.

The amount of garbage only from beach shore shows 71% of plastic and 28% non-plastics and there is no proper solution for this problem.The project aims to introduce a pixar robot, which is capable of collecting wastes in beaches using image processing techniques.

Problem Statement

- In our country recycling centers do manual process of collecting garbage's which leads to a high risk of acquiring sickness.
- An efficient garbage Collection solution is needed which is safe, lenient and automatic than the existing ones.
- The implementation of a waste delivery system without any human interference in the waste collecting process is required.
- It is also implemented in the form of a robot that can dispense collected garbage to the dispensing point

Objective

- A big part of what the system do is keeping a daily detection and collection of garbage.
- The system aims to avoid human intervention so that the work load of humans can be reduced.
- The system can work mainly in beach shores and road sides.
- Humans doesn't require any special skills to use the system as it is user-friendly.

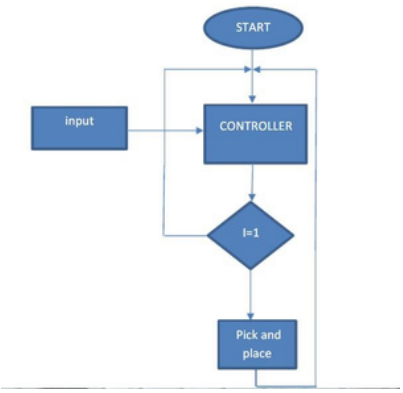

Figure 1. Flow chart for the controller of robotic arm

Proposed System

- The proposed robot is in random motion whenever it senses any object it stops and camera takes image of the object.
- If processing and identification of the object is done, it will pick up or mechanically sifts sand to collect plastic waste and dump in to it's trash box.
- When the trash box is filled with collected wastes, it is then dumped into an appropriate place.
- This robot is more comfortable for tourist places because escalating amount of wastes are generated during vacations.

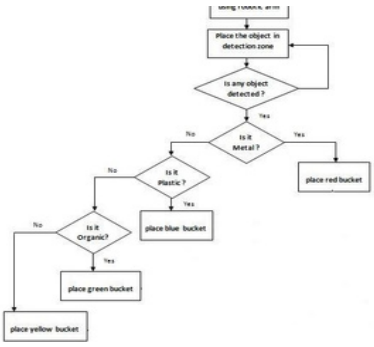

Figure 2. Flow chart for identification of object and separation.

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Acknowledgments

We are grateful to Almighty God and to all those who assisted us in these early stages of the project. We are especially grateful to our project guide Ms. Shyni Shajahan, for her invaluable insights and advice. We are also grateful to oru project coordinator Mr. Ajmal E B, HOD Ms. Selin M, and other individuals associated with the project for their ongoing support.

INTELLIGENT GO LIGHT CONTROLLER(IGLC)

Asst.Prof.Shyni Shajahan,Adil Abdul Salam,Adithya Ashok,
Afthab Siyad,Bharath M.A

Introduction

- Traffic Management is an issue which impacts us almost daily.
- Traffic congestion is due to poor traffic prioritization.
- Number of vehicles are increasing at a fast pace.
- Traffic jams during rush hours are becoming a routine affair

Figure 1. Traffic jam

Problem Statement

- Present system uses traffic signals which are based on timer ICs to control traffic
- System will just show a green light for the empty road on its turn for 1-3 mins
- Traffic on the other roads will go on increasing and thus lead to traffic jams

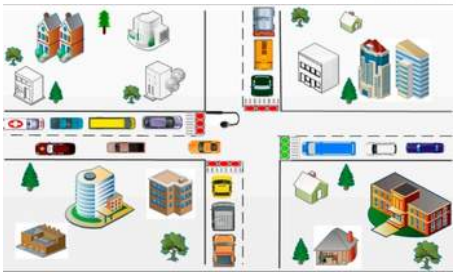

Figure 2. Emergency vehicle waiting at an intersection

Objectives

- Our hack is to design a robust and efficient system to solve the traffic jam issues in urban areas
- Creating a better reliable system for changing the current system

Proposed System

- Solve traffic problem using image processing techniques
- Extract the traffic density
- Based on matching percentage it will assign a fixed amount of time to each road signal
- System to detect emergency vehicles like ambulances and fire engines
- Identifying the number plate of vehicle

Figure 3. Ambulance being scanned by the camera

Figure 4. Traffic violation

Conclusions

The model provides a solution to reduce traffic congestion on roads overriding the older system of hard coded lights which cause unwanted delays. Reducing congestion and waiting time.

Acknowledgments

We take this opportunity to express our gratitude to everyone who helped in this project

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GENERATED AUDIO DETECTOR

Antony Ben Mohd. Arshad Mohd. Illyaz AfnaVS

Spoofed Audio Menace

The rise in cyber-crimes has caused a lot of problems including impersonation of people. We have seen a lot of impersonations of high-profile people and misusing them to win cases etc. This is where our product comes in clutch, introducing Generated audio detector.

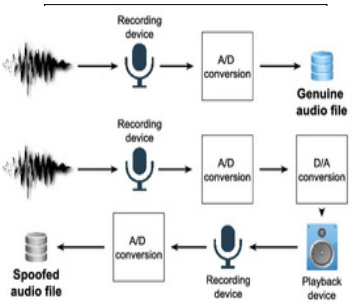

Figure 1:Differencebetweena genuineaudiofile and spoofed audio file.

Objectives

The main objectives are:

•To identify whether the audio is spoofed completely.

• Toidentifyifanypartoftheaudioissplicedorpartially spoofed.

•To identify the beginning and ending part of the fake audio part inside an original clip of audio.

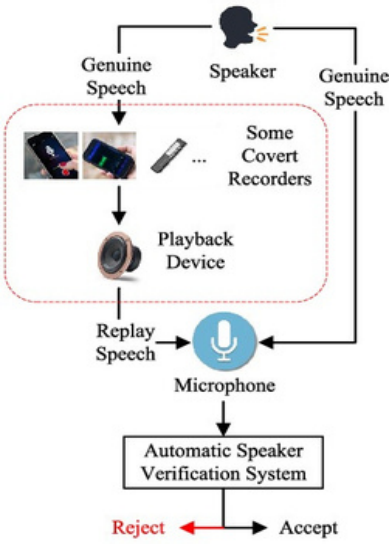

Figure 2: How the audio is usually spoofed and the use of Automatic Speaker Verification System to accept or reject the audio.

Methodology

We use NLP or Natural Language Processing, which is a form of AI that gives machines the ability to not just read, but to understand and interpret human language. We also use MATLAB for data-sets to form a foundation for the machine to start learning about the original or genuine audio and once learned thoroughly, it would be able to accept or reject the audio based on the condition that it is spoofed or a genuine file.

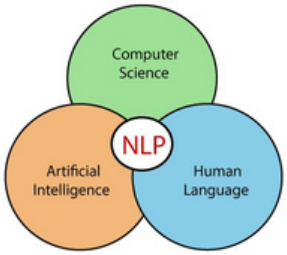

Figure 3: Natural Language Processing

Summary

An audio spoofing signal is generated by manipulating a genuine signal through recording, synthesizing or modifying to trick a speaker verification system. As we all know as the time goes, everything is becoming more technological advanced, with everything becoming automated, hence the need for a proper Speaker verifications system arises.

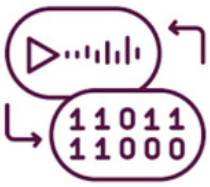

Figure 5: Audio conversion done by machine learning systems.

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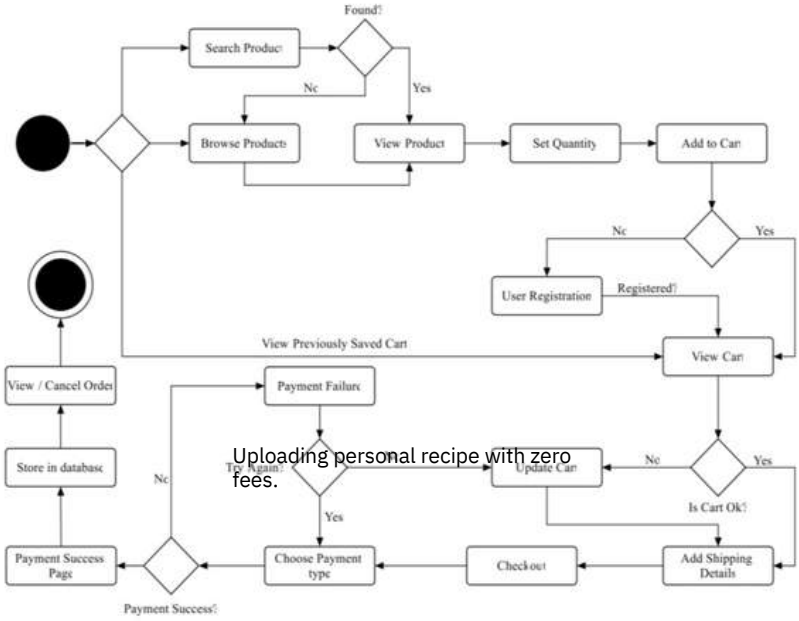
FARMER'S HUB

Prof.Elia Nibia,Abdul Malik,Manuel Mathew john,Gautham Krishna,
Mohammed Nihal M N

Introduction

Farmer's Hub is a responsive web-based application that is providing platform wherein farmer can sell his crop products at different layer of marketing chain with multiple option.The system allows farmers to sell their stock directly as a direct supplier throughout the state without any middlemen so that, farmer earns optimum rates for his stock and also the customer gets it at lowered costs.it also includes AI based price prediction system.

Share you recipe in 30 sec videos



Problem Statement

Farmers has been selling their products to the markets with the help of mediators. In this existing system farmers doesn't get enough profit since there is a middleman acting between the farmers and the customers and shopping can only be done in manual ways. In the existing system doesn't contains price prediction system.

Different option available according to users w i s h.

Objectives

- To manage Users
- To manage products
- To manage orders
- To manage payments
- Generate Invoice
- Generate order report, Product stock report, sales report.

Proposed Methodology

This application helps both farmer and buyers. It contains login for farmer, users and controlled by admin Modules are User management, product management, cart management, order management, ratings management, payments management... Searching, filtering, pagenation.This sytem consist of an AI based price predicition system which aloows farmers to know the price of a product at a particular time in advance .

Summary

- This application helps both farmer and users
- It ensures that the farmer gets paid for their products Users can purchase agricultural products without going into the m ark et
- Farmer can know the status of their products..

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6 Creating MERN app https://www.geeksforgeeks.org/mern-stack/
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IOT BASED PERSONAL THERMAL COMFORT SYSTEM

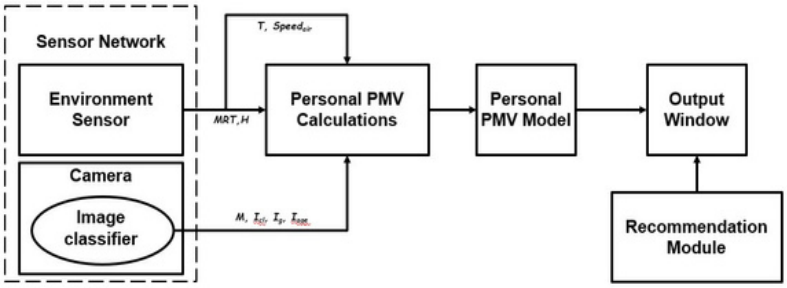
Nazeeya Azeem, Shahanas K A, Rithina Abdul Kareem, Fasna K P

Introduction

Thermal comfort describes a person's state of mind in terms of whether they feel too hot or too cold. It can affect a person's productivity and efficiency. The proposed project is an Internet of Things (IoT) based system for a personalized model of thermal comfort. System monitors humidity, temperature, air velocity, clothing, metabolism and mean radiant temperature along with age and gender to determine thermal comfort.

Problem Statement

None of the existing system have considered the implications of a temperate climate. Neither has age and gender of the person been taken into account. Only when these parameters are taken along with parameters like activity, clothing, air speed, air temperature, mean radiant temperature, humidity can a more precise output for thermal comfort be found. A recommendation system that is proposed can help users in planning for adverse thermal conditions.



Proposed System

- The proposed system uses Fanger's equation modifies to consider age and gender to predict the personal thermal comfort.
- Constant values used in the equations are taken with the temperate climate of India in consideration.
- Factors used in equation are: activity, clothing, air speed, air temperature, mean radiant temperature and humidity along with age and gender.
- The system uses appropriate sensors to collect the parameters for the equation.
- These parameters are used to predict the thermal comfort of an individual with ML.
- Further, systems can be duplicated for different geographical locations.
- User can check out the thermal conditions and think of what actions he/she must take as per recommendations.

System Design

- The sensor network is composed of several sensors connected together by IoT.
- Sensors used are temperature sensor, humidity sensor, and air velocity sensor used to capture the indoor environment information; camera used to monitor the individual's personal information, such as activity, clothing, age and gender.
- Machine learning method is used to classify the individual's clothing, age, and gender images captured and map the classification result to the corresponding values and rates.
- Next, the PMV index is calculated based on the obtained parameter values.
- The mean value of PMV recorded for a period is used for the resulting value of individual's personal PMV.
- In the prediction stage, we deduce the air temperature and air velocity through the learnt personal PMV index by the PMV model
- Based on the results of PMV model, recommendations are made.
- With the recommendation that are proposed, users can plan for adverse thermal conditions.

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Acknowledgments

We are grateful to Almighty God and to all those who assisted us in these early stages of the project. We are especially grateful to our project guide, Ms. Sheena Kurian K, for her invaluable insights and advice. We are also grateful to our project coordinator Mr. Ajmal E B, HOD Ms. Selin M, and other individuals associated with the project for their ongoing support.

Smart Campus Map

Farisha KR,Jasmin MA,Hairunesa Beevi,Jesna Susan Siby

INTRODUCTION:

Despite the limited amount of time available, the student needs to become familiar, comfortable and independent on campus as quickly as possible. How can a student who is blind or visually impaired quickly learn about buildings,departments?. For that we introduce the SMART CAMPUS MAP with plenty of information in one scan!

Figure 1 smart campus map.

OBJECTIVES:

- To make navigating through KMEA campus easy and exciting
- Indoor and outdoor navigation using BLE and Wifi Technology
- Finding the best shortest way using K-Nearest Neighbours Positioning Algorithm
- Accessible Wayfinding
- Emergency exit finding

Figure 2.KMEA Campus(PSTA Block)

Figure 3. Mapping and Positioning.

EXPECTED OUTCOME:

- A Smart campus Map with indoor navigation .
- Web app to pre-plan the simplest route inside the campus.
- Accessible Wayfinding to anyone approaching the campus.
- Real time Navigation to every spot.
- Finding shortest route for emergencies.
- Audio Support for visually impaired Peoples.

METHODOLOGY:

To implement the smart campus map we need both the hardware and software and they are:

1.Software:

- Zone-based Localization Algorithm
- Open source
- K-Nearest Neighbours Positioning Algorithm
- Inertial navigation
- Particle Filter

2.Hardware:

- UWB(Ultra Wideband technology)
- Wi-Fi Positioning and tracking
- BLE Positioning and tracking
- Wi-Fi RTT
- Ultrasonic

CONCLUSION:

- University and college campuses are often large and congested, with students and faculty members navigating through them everyday.
- With multiple buildings, floors, and indoor and outdoor components, it's easy to get lost on campus.
- So we propose an idea of interactive campus map where you can find the exact location of your destination in real time in one scan

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FOOD TUBE-FOOD LOVE

Ms.LijaJoy, Faseel E A, Manu H, NeslaT N, RizvinK Salim

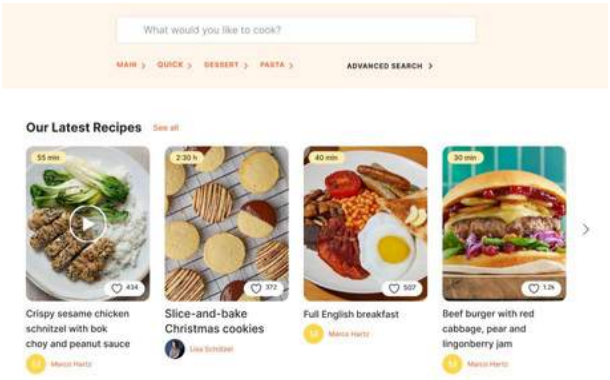
Introduction

Food is the principal part of maintaining life for each living being. Here we consider humans having different varieties for unique taste ideas according to their daily routine. Food tube is an application introduced to share unique indigen recipes across the globe. This application contains a user community in which every user can upload their own recipe ingredients and cooking methods. It runs on the Android platform as well as the website according to users desires.

Share you recipe in 30 sec videos.

Problem Statement

In existing applications their is no income for the users.
There is no live chat and feedback option on other applications.
They have expensive premium membership .There is no videos uploading available in most of the existing app.UI is quite complicated in most of the application.



Different option available according to users w ish.

Objectives

The proposed Cooking Recipe Portal system will be useful for a housemaid with zero income. A restaurant owner can share their personal recipe. Any one can study how to cook without second person. The user can upload or download a recipe on the application providing with community. User can give feedback to each recipe and chef.

Uploading personal recipe with zero fees.

Proposed Methodology

The user can upload or download a recipe on the application. There will be a massive amount of recipes available in the system. Any user can start posting the recipe in the system after registering to the application while a new user can advertise about their recipe on the site. The Cooking Recipe application provide income for the user. User can search recipes the result can be sorted and filtered according to the user' needs.

Summary

This Application system will help user as well as to access on to any time. This project also helps creating recipes related ideas share the ingredients of food items etc. Our application helps even everyone equally with live chat with proper way and to make administrate to know the recipes in case of emergency situation also with proper location finding.

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SMART IGNITE-SMART COOKING SYSEM

Sanjay Raj , Amrutha P S , Abhijithjana, Sona Lazar

INTRODUCTION

- Nowadays, people have a hectic schedule and need to spend an amount of time in the kitchen itself.
- We propose a smart system that can reduce human interactions in the kitchen.
- Goal is to develop a smart cooking device for the kitchen that ensures safety, an automated cooking environment, and reduces fuel wastage.
- Also concentrates on additional protection.

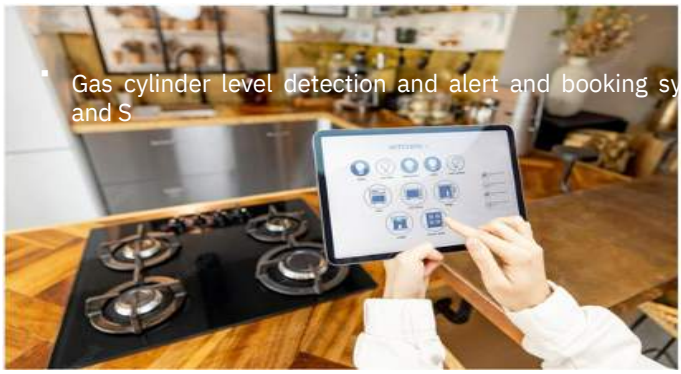
OBJECTIVES

- Helps beginners to cook food without anyeffort.
- Virtual assistance can be used to control the system in order to control the flame withouttouching
- Security is enabled for parental control for unwanted access ofchildren
- Makes cooking easier with the help of cooking presets and an automatic flame-controllingalgorithm
- Over-burning of dishes etccan bedetected and prevented High
- safety feature ensures safety in cooking while dealingwith theflame

The proposed system is a hardware IoT system. With smartphones, we can adjust the flames and cooking time without even touching the stove. Like a micro-oven, a timer system is also available in this system. The system will auto-detect some common items for cooking and set timers for that item by itself, to some extent. Users can also set a timer or adjust the timer as well using an interface. Here also include a Bluetooth system for controlling the burner by voice. When smoke is detected, the temperature is high from its range while humans are not around, and if there is any unnecessary gas amount in the kitchen, a safety module will turn on automatically and an alert is produced. The main advantages of the system are time-saving and easy cooking.

KEY FEATURES

- Safety and security
- Alert System
- Gas Cylinder Level Detection and Alert and Booking System
- Software Based Control
- Temperature Sensor
- Smart Voice Assistant
- Manual/Automatic Methods
- Cooking Presets
- Weighing System
- IOT Based Control
- Gas Leakage System
- Fire Extinguishing Facility
- Flame adjusting and Knob Control
- Customized Design
- Smart cooking menu



ACKNOWLEDGEMENT

We are grateful to Almighty God and to all those who assisted us in these early stages of the project. We are especially grateful to our project guide, Ms. Vidya Hari , for her invaluable insights and advice. We are also grateful to our project coordinator Mr. Ajmal E B, HOD Ms. Selin M, and other individuals associated with the project for their ongoing support..

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Seed Growth Analysis

Ruban Martin, Sahal Feroz, Athira Menon

Introduction

The initial stages of seed growth are crucial.

•It determines how well a plant will be produced.

•Some factors including temperature and moisture can cause harm to these growing seeds.

•Animals like rodents and other animals can also harm the growing seeds.

Problem Statement

Different stages of seeds need different levels of moisture and temperature.

•Rodents can cause great harm to the seeds during the growing stage

System Design

Components:

•Walabot

•Raspberry Pi

•Camera

•Temperature Sensor

•Moisture Sensor

•Ultrasonic Emitter

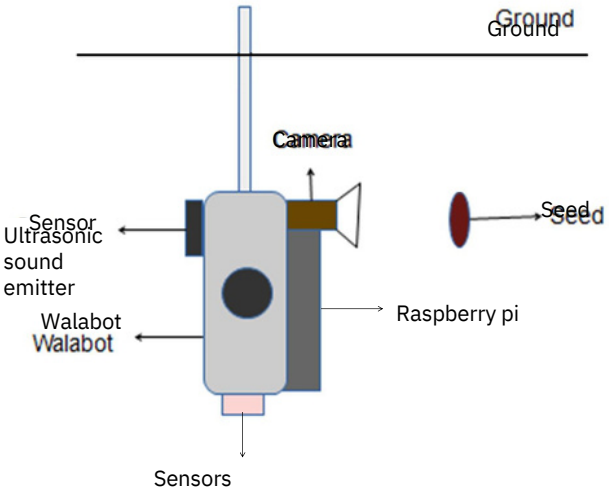

Figure 1. System Design

Methodology

•Our device will be programmed so that at different stages of growth the statistics will be received by the user.

•The different stages of the seed are analyzed using ML algorithms which is implemented by Raspberry Pi.

•It will also send an emergency signal on seeing a larger image than a certain size, showcasing the presence of rodents.

•Rodent detection is done with the help of walabots.

•The temperature and other statistics are analyzed using sensors.

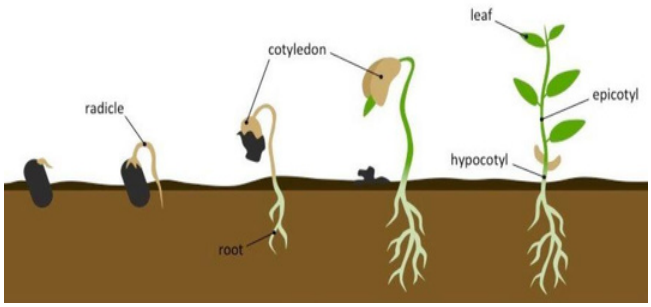

Figure 2. Stages of seed germination

Summary

•The pre-existing systems do not give the user statistics.

•These pre-existing systems are implemented using Arduino which is replaced with Raspberry Pi here.

•Raspberry Pi boards are microprocessors that have their own os and can implement more complex operations.

•Pre-existing systems only analyze a single seed type.

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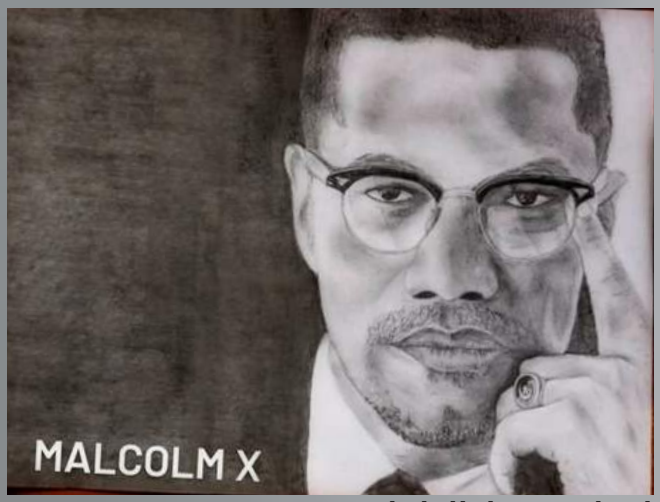
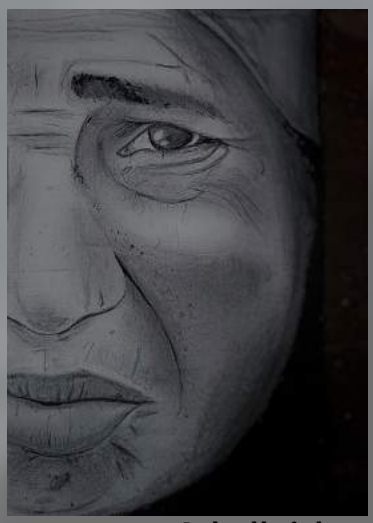
[5]An image acquisition system for automated monitoring of the germination rate of sunflower seeds

ART GALLERY

"Each line is an actor on paper, and an artist is the director who interprets those lines."



Abdullah Noushad
2020-2024



Athulkrishna
2020-2024

-Haripriya K. S
2020-2024

-Nihala Jasmin C. K
2020-2024

Aabida Hameed
2019-2023

ENGLISH

"Learning is the only thing the mind never exhaust, never fears, and never regrets"

- Leonardo Da Vinci

Meeting Prospective Friends during Pandemic

"It's difficult time to create new friends"

High school life is over, the period where we were bounded by protocols and disciplinary rules has finally come to an end for 17 and 18 year olds. The next phase is college life, where students gain a sense of freedom even though bounded by few rules. Each student has different needs and aspirations while selecting a life-changing course and this includes the selection of new friends.

Our school friends, whom we grew up with, who have witnessed our ups and downs and our transformation from childlike friends, behaviour to matured ones. But with college friends, they only see a side of us what we allow them to see. By keeping this in our mind, we step forward into college life. That's when the Covid 19, the pandemic hits the earth, just like how an asteroid hits the surface of the Earth, shaking the entire region with its effect. Everything has changed, our dreams had to be altered and what not? With the implementation of national lockdown, we found solace within our four walls of our house. In this advanced decade, everything seemed easy with technology. Social media platforms are notorious for" their prodigious ability to spread good and bad information during this crisis

Classes, often referred to as online classes started in most schools and universities Subjects were taught via google meet or similar apps. To most of them, there wasn't much difficulty to grasp the topics. But how easy was it to make trends online? Friends with whom we now share the same dreams and griefs, those who will be our lifelong friends was it easy as we created Facebook or Instagram friends or did you find some difficulty when making a circle of friends?

A few or most might think, what was the difficulty in there!? I made a handful of friends and made a strong bond with them, 'Chunkzz' is what they call them, the colloquial word referring to a close friends. But to how long others, as me, was skeptical to open up to a new person even though we wonted to make friends, wanted to share our stories and memories, not knowing how long the pandemic will last. But whom to trust was the biggest question marks? Who all will be in our circle of friends was a blank space. Formal pleasantries were exchanged with most of them and those skeptical ones still made their names known to the classmates. And so the online friends and classes carried on and it was finally time to meet everyone face to face. Everyone learned the names of their class and bench mates and made a circle of friends.

But a question for you to ponder, is your present circle of friends the same one as you expected to be while texting online, or did it change once everyone met everyone.

Afterall there's a saying, texting is a brilliant way to miscommunicate how you feel and misinterpret what other people mean.

-Safa Fyrose P. A
2020-2024

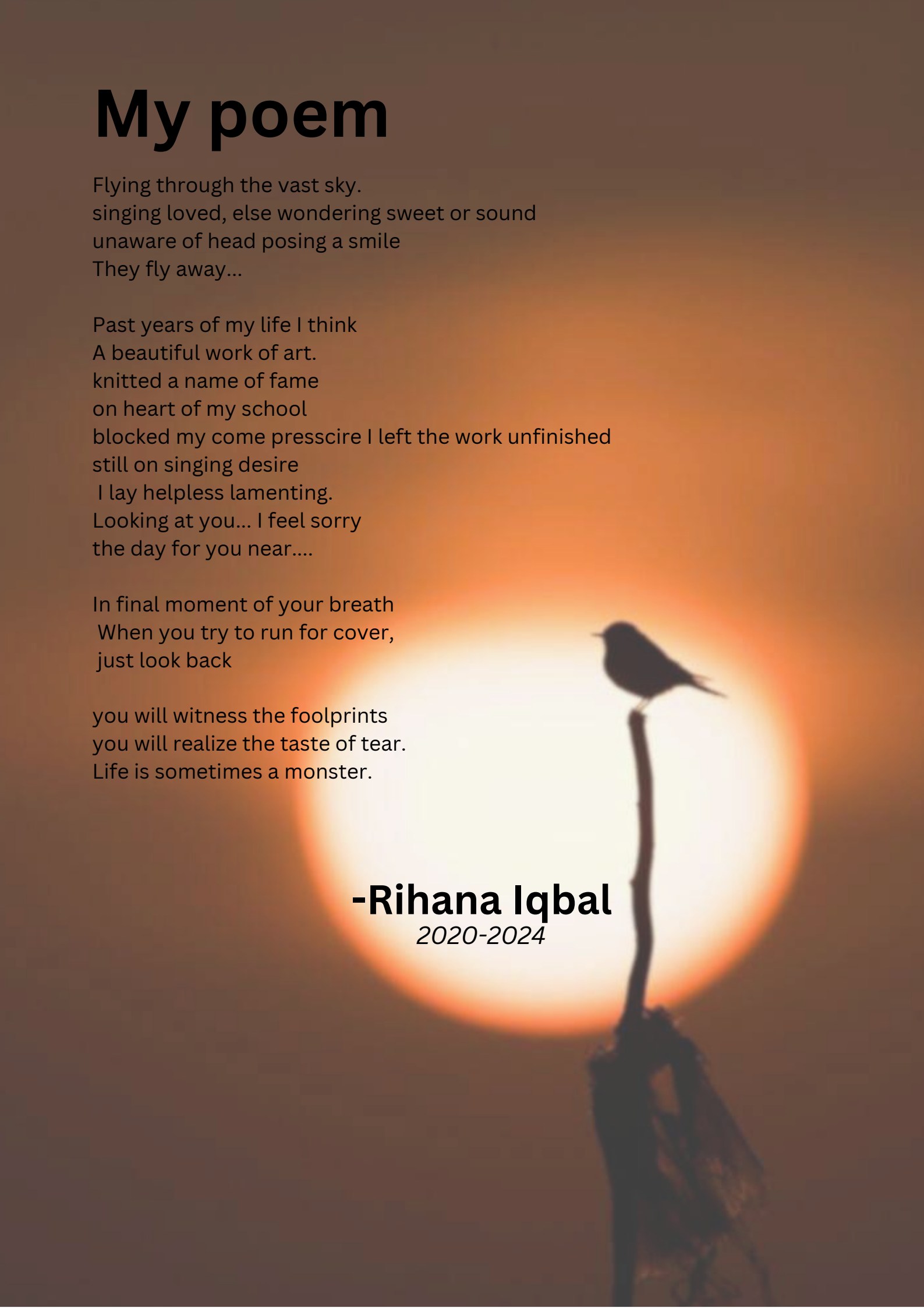
My poem

Flying through the vast sky.
singing loved, else wondering sweet or sound
unaware of head posing a smile
They fly away...

Past years of my life I think
A beautiful work of art.
knitted a name of fame
on heart of my school
blocked my come presscire I left the work unfinished
still on singing desire
I lay helpless lamenting.
Looking at you... I feel sorry
the day for you near....

In final moment of your breath
When you try to run for cover,
just look back

you will witness the foolprints
you will realize the taste of tear.
Life is sometimes a monster.



-Rihana Iqbal
2020-2024

AI predicts how proteins will attach

Antibodies, small proteins produced by the immune system, can attach to specific parts of a virus to neutralize it. As scientists battled SARS-CoV-2, the virus that causes Covid-19, one possible weapon is a synthetic antibody that binds with the virus' spike proteins to prevent the virus from entering a human cell.

To develop a successful synthetic antibody, researchers must understand exactly how that attachment will happen. Proteins, with lumpy 3D structures containing many folds, can stick together in millions of combinations, so finding the right protein complex among almost countless candidates is extremely time-consuming.

To streamline the process, MIT researchers created a machine-learning model that can directly predict the complex that will form when two proteins bind together. Their technique is between 80 and 500 times faster than state-of-the-art software methods, and often predicts protein structures that are closer to actual structures that have been observed experimentally.

This technique could help scientists better understand some biological processes that involve protein interactions, like DNA replication and repair; it could also speed up the process of developing new medicines.

"Deep learning is very good at capturing interactions between different proteins that are otherwise difficult for chemists or biologists to write experimentally. Some of these interactions are very complicated, and people haven't found good ways to express them. This deep-learning model can learn these types of interactions from data," says Octavian-Eugen Ganea, a postdoc in the MIT Computer Science and Artificial Intelligence Laboratory (CSAIL) and co-lead author of the paper.

Ganea's co-lead author is Xinyuan Huang, a graduate student at ETH Zurich. MIT co-authors include Regina Barzilay, the School of Engineering Distinguished Professor for AI and Health in CSAIL, and Tommi Jaakkola, the Thomas Siebel Professor of Electrical Engineering in CSAIL and a member of the Institute for Data, Systems, and Society. The research will be presented at the International Conference on Learning Representations.

Protein attachment

The model the researchers developed, called Equidock, focuses on rigid body docking — which occurs when two proteins attach by rotating or translating in 3D space, but their shapes don't squeeze or bend.

The model takes the 3D structures of two proteins and converts those structures into 3D graphs that can be processed by the neural network. Proteins are formed from chains of amino acids, and each of those amino acids is represented by a node in the graph.

The researchers incorporated geometric knowledge into the model, so it understands how objects can change if they are rotated or translated in 3D space. The model also has mathematical knowledge built in that ensures the proteins always attach in the same way, no matter where they exist in 3D space. This is how proteins dock in the human body.

Using this information, the machine-learning system identifies atoms of the two proteins that are most likely to interact and form chemical reactions, known as binding-pocket points. Then it uses these points to place the two proteins together into a complex.

The model the researchers developed, called Equidock, focuses on rigid body docking — which occurs when two proteins attach by rotating or translating in 3D space, but their shapes don't squeeze or bend. The model takes the 3D structures of two proteins and converts those structures into 3D graphs that can be processed by the neural network. Proteins are formed from chains of amino acids, and each of those amino acids is represented by a node in the graph. The researchers incorporated geometric knowledge into the model, so it understands how objects can change if they are rotated or translated in 3D space. The model also has mathematical knowledge built in that ensures the proteins always attach in the same way, no matter where they exist in 3D space. This is how proteins dock in the human body. Using this information, the machine-learning system identifies atoms of the two proteins that are most likely to interact and form chemical reactions, known as binding-pocket points. Then it uses these points to place the two proteins together into a complex.

Seconds vs. hours

Once the model was trained, the researchers compared it to four software methods. Equidock is able to predict the final protein complex after only one to five seconds. All the baselines took much longer, from between 10 minutes to an hour or more.

In quality measures, which calculate how closely the predicted protein complex matches the actual protein complex, Equidock was often comparable with the baselines, but it sometimes underperformed them.

"We are still lagging behind one of the baselines. Our method can still be improved, and it can still be useful. It could be used in a very large virtual screening where we want to understand how thousands of proteins can interact and form complexes. Our method could be used to generate an initial set of candidates very fast, and then these could be fine-tuned with some of the more accurate, but slower, traditional methods," he says.

In addition to using this method with traditional models, the team wants to incorporate specific atomic interactions into Equidock so it can make more accurate predictions. For instance, sometimes atoms in proteins will attach through hydrophobic interactions, which involve water molecules.

Their technique could also be applied to the development of small, drug-like molecules, Ganea says. These molecules bind with protein surfaces in specific ways, so rapidly determining how that attachment occurs could shorten the drug development timeline.

In the future, they plan to enhance Equidock so it can make predictions for flexible protein docking. The biggest hurdle there is a lack of data for training, so Ganea and his colleagues are working to generate synthetic data they could use to improve the model.

This work was funded, in part, by the Machine Learning for Pharmaceutical Discovery and Synthesis consortium, the Swiss National Science Foundation, the Abdul Latif Jameel Clinic for Machine Learning in Health, the DTRA Discovery of Medical Countermeasures Against New and Emerging (DOMANE) threats program, and the DARPA Accelerated Molecular Discovery program.

-Nidal Yoonus
2020-2024

The Olden Days Of My Dad

I asked my Dad once, ‘What was your favourite fast food when you were growing up?’

‘We didn't have fast food when I was growing up’, he informed me. ‘All the food was slow.’ Come on, seriously ‘where did you sat?' 'It was a place called "at home". he explained.

"Mom cooked everyday and when Dad get home from work, we sat down together at the dining room table’, and if I didn't like what she put on my plate, I was allowed to sit there untill I DID like it! By this time, I was laughing so hard, he was afraid I was going to suffer serious internal damage, so he didn't tell me the part about how he had to have permission to leave the table.

But here are some other things he would have told me about his childhood, if he figured my system could have handled it:

He Continued:

"Some parents NEVER owned their own house, never wore.

Levis, never set foot on a golf course, never travelled out of the country or had a credit card.

"My parents never drove me to soccer practice. This was mostly because cwe never had heard of soccer. We called it football.

I had a bicycle that weighed probably 50 pounds, and only had one speed, (slow). "

"We didn't have a television in our house untill I was 15.

The television was, of course, black and white, and the station went off the air at midnight, after playing the 11pm news. It came back on the air at about 6am. playing Indian classical music."

"I was 20 before I tasted my first pizza, it was called ‘pizza pie’ When I bit into it, I burned the roof of my mouth and the cheese slid off, slung down, plastered itself against my chin and burned that, too. It's still the best pizza I ever had. Yanke Doodle of cochin was the first pizza restuarant in the state.

'I never had a telephone in my room. The only phone in the house was in the living room and it was on a party line. Before you could dial, you had to listen and make sure some people you didn't know weren't already using the line.”

Pizzas were not delivered to our home. But milk was. "All newspapers were delivered by boys; and all boys delivered newspapers.’

"There were no movie ratings because all movies were responsibly produced for everyone to enjoy viewing, without profanity or violence or most anything offensive.

We are growing up in a generation when there is fast food, we may want to share some of these memories with our friends. I am not to be blamed if they bust a gut laughing. . . . .

-Aaina Akbar
2020-2024

എന്റെ മാതൃഭാഷ

ആളു വളരാനും മാതൃഭാഷ വേണം
നാടു വളരാനും മാതൃഭാഷ വേണം
നേരറിയാനും നല്ലോണം ചെല്ലാനും
നേരാകുമീ മാതൃഭാഷ വേണം

ആദി

ലക്ഷ്മി മെമ്മോറിയൽ ക്യാൻസർ റിസർച്ച് സെൻററിന്റെ കൺസൾട്ടേഷൻ മുറിയിൽ തിരക്കൊഴിഞ്ഞപ്പോൾ, ഡോക്ടർ ആദി ഇരിപ്പിടത്തിന് പിന്നിലെ ചുവരിൽ പുഞ്ചിരിയോടെ ഇരിക്കുന്ന സുന്ദരിയായ യുവതിയുടെ ചിത്രത്തിലേക്ക് തിരിഞ്ഞുനോക്കി.

അത് ലക്ഷ്മിയുടെ ചിത്രമായിരുന്നു..

ആ നോട്ടം വർഷങ്ങൾക്കു പിന്നിലേക്കാണ് അയാളെ കൊണ്ടുപോയത്...

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അച്ഛനെ പോലെ ഒരു ഡോക്ടർ ആവണം എന്നായിരുന്നു, കുട്ടിക്കാലം മുതലേ ആദിയുടെ ആഗ്രഹം. അച്ഛൻ ചെയ്യുന്ന പല ജീവകാരുണ്യ പ്രവർത്തനങ്ങളും ആദിയുടെ മനസ്സിനെ വല്ലാതെ സ്വാധീനിച്ചിരുന്നു. വീട്ടിലെ കുസൃതിക്കുട്ടിയായിരുന്ന ആദി പഠിയ്ക്കാനും മിടുക്കനായിരുന്നു. മാതാപിതാക്കളെയും സഹോദരങ്ങളെയും അവൻ ഏറെ സ്നേഹിച്ചു.

ഡോക്ടർ ആവുകയെന്ന ലക്ഷ്യത്തിനായി അവൻ നന്നായി പരിശ്രമിച്ചു. ആ ശ്രമം വിജയത്തിലെത്തുകയും ചെയ്തു.

നഗരത്തിലെ പ്രസിദ്ധമായ മെഡിക്കൽ കോളേജിൽ മെഡിസിന് പ്രവേശനം കിട്ടിയപ്പോൾ അവൻ ഏറെ സന്തോഷിച്ചു. പക്ഷേ അച്ഛനെയും അമ്മയെയും വിട്ടുപിരിയുന്നത് അവന് വലിയ സങ്കടമായിരുന്നു. ആദ്യത്തെ കുറച്ച് നാളുകളിൽ അവധി കിട്ടുന്ന ഓരോ ദിവസങ്ങളിലും അവൻ വീട്ടിലേക്ക് ഓടിയെത്തുമായിരുന്നു.

അങ്ങനെയിരിക്കെയാണ് സഹപാഠിയായ ലക്ഷ്മിയുമായി ചങ്ങാത്തത്തിലാവുന്നത്. വീട് വിട്ടു പോന്നതിന്റെ സങ്കടങ്ങളൊക്കെയും അവളുമായുള്ള സംഭാഷണങ്ങളിലൂടെ അവൻ മറക്കാൻ തുടങ്ങി. അവരുടെ സൗഹൃദം വളർന്നുകൊണ്ടിരുന്നു.

പഠനത്തിൻറെ രണ്ടാം വർഷത്തിലേക്ക് പ്രവേശിക്കുമ്പോൾ അവരുടെ ചങ്ങാത്തത്തെ കൂട്ടുകാർ ശ്രദ്ധിച്ചു തുടങ്ങി. പലരീതിയിലും അവരുടെ സൗഹൃദം വ്യാഖ്യാനിക്കപ്പെട്ടു. തുടരെയുള്ള കളിയാക്കലുകളും അർത്ഥം വച്ചുള്ള സംഭാഷണങ്ങളും അവരിൽ പ്രണയം ജനിപ്പിച്ചു എന്നു തന്നെ പറയാം. ക്ലാസ്സുമുറികളും കലാലയ വഴികളും, പൂത്തുനിൽക്കുന്ന വാകമരങ്ങളും അവരുടെ പ്രണയത്തിന് വേദിയും മൂകസാക്ഷിയുമായി.

ലക്ഷ്മി ഒരു പാവപ്പെട്ട വീട്ടിലെ കുട്ടിയായിരുന്നു, അച്ഛൻറെയും അമ്മയുടെയും ഓമന മകൾ.

പ്രണയച്ചില്ലകൾ പൂത്തുലഞ്ഞു നിൽക്കേ, ഒരു ദിവസം ലക്ഷ്മി കാരണമൊന്നും പറയാതെയാണ് വീട്ടിലേക്ക് പോയത്.

ഒരാഴ്ച കഴിഞ്ഞിട്ടും അവൾ വന്നില്ല. അസ്വസ്ഥനായ ആദി പലരീതിയിലും അവളുമായി ബന്ധപ്പെടാൻ ശ്രമിച്ചുവെങ്കിലും സാധിച്ചില്ല.

ഒരു മാസത്തിന് ശേഷം ലക്ഷ്മി വന്നത് ആദിയെ ആഹ്ളാദിപ്പിച്ചെങ്കിലും, അവൾ അവനോടു പോലും ഒന്നും പറയാതെ ക്ലാസ് മുറിയിൽ തന്നെ ഒതുങ്ങിക്കൂടി. ദിവസങ്ങൾ കൊഴിഞ്ഞുകൊണ്ടിരുന്നു. ലക്ഷ്മി അവനെ അവഗണിക്കുകയാണോ എന്നവൻ. സംശയിച്ചു. അവർക്കിടയിലെ അകലം കൂടി കൂടി വന്നു. ഒരു ദിവസം ആദിയുടെ നിർബ്ബന്ധത്തിന് വഴങ്ങിയ ലക്ഷ്മി, ആദിക്കൊപ്പം കോളേജിനു താഴെയുള്ള പാർക്കിൽ പോയി. എന്തിനാണ് തന്നെ ഇങ്ങനെ ഒഴിവാക്കുന്നത് എന്ന ആദിയുടെ ചോദ്യത്തിന് ഉത്തരമില്ലാതെ അവൾ കുറെ സമയം അവനെ തന്നെ നോക്കി ഇരുന്നു. പിന്നീട് നിർവ്വികാരയായി പറഞ്ഞു

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നമുക്ക് ഭാഗ്യമില്ല ആദി ഞാൻ ഒരു രോഗിയാണ്, അനുനിമിഷം മരിച്ചു കൊണ്ടിരിക്കുന്ന രോഗി ലക്ഷ്മിയുടെ വാക്കുകൾ ആദി ഞെട്ടലോടെ കേട്ടിരുന്നു, അവന് ഒരിക്കലും അംഗീകരിക്കാൻ പറ്റുന്നതായിരുന്നില്ല. അവളുടെ ആ വാക്കുകൾ,

ലക്ഷ്മി തുടർന്നു.
ചെറുപ്പകാലം മുതലേ ഇടക്കിടെ തലവേദന വരുമായിരുന്നു, അന്നൊന്നും അത് കാര്യമാക്കിയിരുന്നില്ല. കഴിഞ്ഞദിവസം അതിശക്തമായ തലവേദന വന്നു. എന്നും വരുന്നതുപോലെതന്നെയെന്ന് കരുതിയെങ്കിലും, വേദനയുടെ തീവ്രത കൂടിക്കൂടി വന്നു. മൂക്കിൽ നിന്നും രക്തം വരുന്നത് വരെ നീണ്ടു ആ വേദന. അതിനു ശേഷമാണ് ഞാൻ വീട്ടിലേക്ക് പോയത്. ഡോക്ടറെ കണ്ടു, വിശദ പരിശോധനയിൽ എനിക്ക് ക്യാൻസർ ആണെന്നും അതിൻറെ അവസാന ഘട്ടത്തിലാണെന്നും അറിഞ്ഞു. ഇനി ഒന്നും ചെയ്യാനില്ലെന്നും !!
ആദി പൊട്ടിക്കരഞ്ഞു.
അവളെ എങ്ങനെ സമാധാനിപ്പിക്കും എന്നറിയാതെ അവൻ വിങ്ങി.
ഒരു വെക്കേഷൻ വീട്ടിൽപ്പോയി തിരികെയെത്തുമ്പോഴേക്ക്, എല്ലാവർക്കും വേദന സമ്മാനിച്ചുകൊണ്ട്
ഈ ലോകം വിട്ടു പൊയ്ക്കഴിഞ്ഞിരുന്നു അവൾ. അവളുടെ വേർപാട് അവന് താങ്ങാവുന്നതിലും അപ്പുറമായിരുന്നു. കുട്ടിക്കാലത്തെ ആഗ്രഹങ്ങൾ അപ്പാടെ അവനിൽ നിന്നും പോയി,
ഒരാൾക്ക് ജീവൻ നൽകാൻ കഴിഞ്ഞില്ലെങ്കിൽ എന്തിനാണ് താൻ ഡോക്ടർ ആകുന്നത് എന്ന ചിന്ത അവനെ മഥിച്ചു. ലക്ഷ്മിയുടെ ഓർമ്മകളെ മനസ്സിൽ നിന്നും മായ്ക്കാൻ അവന് കഴിഞ്ഞില്ല. നിരാശനായി മദ്യത്തിനും ലഹരിക്കും അടിമയായ അവൻ, മരണത്തെക്കുറിച്ചു വരെ ചിന്തിച്ചു.

മരണത്തിനും ജീവിതത്തിനുമിടയിലുള്ള നൂൽപ്പാലത്തിൽ അവന്റെയുള്ളിൽ ലക്ഷ്മിയുടെ ഓർമ്മകൾ കടന്നുവന്നു. അവളുടെ ഏറ്റവും വലിയ ആഗ്രഹം ക്യാൻസർ രോഗികൾക്ക് വേണ്ടി പ്രവർത്തിക്കണം എന്നായിരുന്നുവല്ലോ. എന്തുകൊണ്ട് ആ ആഗ്രഹം എനിക്ക് സാധിച്ചു കൊടുത്തുകൂടാ? അതൊരു ചോദ്യചിഹ്നമായി അവന്റെ മനസ്സിൽ ഉയർന്നു. അതവന് ലക്ഷ്യബോധം നൽകി. ഇന്നവൻ നൂറുകണക്കിന് ക്യാൻസർ രോഗികൾക്ക് ചികിത്സ നൽകുന്ന ഒരു സ്ഥാപനത്തിന്റെ സാരഥിയാണ്. ഒട്ടേറെ ആളുകൾക്ക് അവൻ പുതുജീവൻ നൽകുന്നു. അറിഞ്ഞോ അറിയാതെയോ അവൻ ഇന്ന് പലരുടെയും ഹൃദയങ്ങളിലെ മാലാഖയാണ്.

എന്നാൽ അവന്റെ മനസ്സിലെ മാലാഖയുടെ ചിത്രം എന്നും ലക്ഷ്മിയുടെതാണ്.
അയാൾ ചിത്രത്തിൽനിന്ന് നോട്ടം പിൻവലിച്ച് മേശയിലേയ്ക്ക് തല ചായ്ച്ചു.
അപ്പോൾ ഒരിറ്റ് കണ്ണുനീർ അയാളുടെ അനുവാദമില്ലാതെ ആ മേശമേൽ വീണുചിതറി.

-Dhanalakshmi Sasi
2020-2024

പറയാൻ ബാക്കിയായത്...

സമാന്തരങ്ങളില്ലാത്ത യാത്രകൾ . ഓരോ യാത്രയും ജീവിത പാഠങ്ങൾ... ജീവിതം ഒരർത്ഥത്തിൽ ഓരോ നിമിഷവും പുത്തൻ നവോത്ഥാനത്തിന്റെ തുടകമാവുന്നു . യാത്രകൾക്ക് ഞാൻ ആകർഷണമാവു മ്പോൾ ഓരോ നിമിഷവും പുതിയൊരു വഴിതിരിവിലേക്ക് സഞ്ചരിക്കുന്നു. അനുഭവങ്ങളും യാഥാർഥ്യങ്ങളും ചങ്ങല കണ്ണിപോലെ നീണ്ടു നിവർന്നു കിടക്കുന്നു. അന്ന് മില്ലാത്ത എന്റെ രണ്ട്യാ യാത്രകളും അവസാന കണ്ണിയിലേക്ക് നിങ്ങും പോല ശാന്തമില്ലാത്ത മനസ്സിന്റെ തേങ്ങൽ എന്ന ചിന്തകളിൽ നിന്ന് വഴിമാറ്റുന്നു എന്തോ, എന്നിൽ നിന്നും അകന്ന് പോകുന്നു മനസ്സ് ഒരു പുതിയ യാത്രയ്ക്ക് തുടക്കമിടുന്നത് പോലെ ആർകും എത്തിപെടാൻ പറ്റാത്ത ഒരു വിദൂരതയിലേക്.

സഞ്ചാരങ്ങൾക്കായ് എന്റെ ചിറകുകൾ വീണ്ടും ചിറകടിക്കുന്നു. ആവുന്നില്ല എന്തെന്നില്ലാത്ത ഒരു വിശാദ മനോഭാവം. പ്രകൃതിയുമായി ഒന്ന് ചേർന്നിട്ട് 85 വർഷങ്ങൾ പിന്നിടുന്നു. പക്ഷേ നൂറ്റാണ്ടുകളുടെ ബന്ധമാണ് തോന്നുന്നത്. അമ്മയുടെ മടിതട്ടിലേക്ക്അ അലിഞ്ഞു ചേരാൻ സമയമായി എന്നൊരു ഉൾവിളി എന്റെ പൂർവികർ എത്ര ഭാഗ്യം ചെയ്തവരാണ് . അവരുടെ സഞ്ചാരങ്ങൾ ഏവരുടെയും മനസ്സിൽ അടിവരയിടുന്നതാണ്, സ്വാതന്ത്ര്യത്തിന്റെ യഥാർത്ഥ രുചിയറിഞ്ഞവരാണവർ ജീവിതശൈലിയായിരിക്കുന്നു. വിണ്ടും കാഴ്ച്ചയാവുന്ന കൂട്ടങ്ങൾ പോലും പുതിയൊരു മാറ്റമാണ് സൃഷ്ടിക്കുന്നത് പ്രതീക്ഷയുടെ തുടക്കമിടുകയാണ്.

കണ്ണുകൾ സാക്ഷിയായ ദൃശ്യവത്കരണം മനസ്സിന് ഓർമയായി നിറക്കുന്നു. യാത്രകൾ ഏറെ പ്രിയപ്പെട്ടതാവുമ്പോൾ ചിന്തകളിൽ ഞാൻ ഓർക്കുന്നു. ഞാൻ എന്ത്അ നേടി? എന്ത് നൽകി? യാത്രകൾ അവസാനമില്ലാത്തതാണ്. എന്നാൽ ജീവിതയാത്ര അത്ക ഒരുനാൾ അന്ത്യം കുറിക്കും. ഒരിക്കലും തുടങ്ങാനാവാത്ത ഒരു യാത്രയുടെ അന്ത്യം ഒറ്റ തടിയായി ജിവിതം ആരംഭിച്ചുപോഴും ലക്ഷ്യമൊന്നുമില്ലായിരുന്നു. ലോകം ഒരുപാട് മാറിയിരിക്കുന്നു. ഏതു മേഖലയിലും പുത്തൻ ആവിശ്കാരങ്ങൾ, മാറ്റമില്ലാത്ത പ്രകൃതിയെ പോലും കാലം തിരുത്തി.

മനസ് അന്തകാരത്തിലേക്ക് നീങ്ങുന്നു ചിന്തകൾ നിലകുന്നു. എന്തെന്നില്ലാത്ത അലവലാതി കണ്ണുകളടച്ചു പുത്തൻ സ്വപ്നങ്ങളുടെ നിദ്രയിലേക്ക് ഒരു യാത്ര. മണിക്കൂറുകൾ പിന്നിട്ടറിഞ്ഞില്ല. യാത്ര അവസാനിപ്പിച്ചു പെട്ടെന്ന് ഞാൻ ഉണർന്നു. അത്ഭുതം. മനസ്സിന് എന്തെന്നില്ലാത്ത ഒരു ഉന്മേഷം ഞാനും എന്റെ സഹായയാത്രിക്കാനും പുറപ്പെട്ടു കാൽപാതകൾ മുന്നോട്ട് നീങ്ങുമ്പോൾ, ആദിത്യൻ എന്നിൽ നിന്ന്

മറയുന്നു . നാളത്തെ ഉജ്ജ്വല വരവേല്പിനായി യാത്രയാവുന്നു. മനസ്സ് നിറഞ്ഞു. ആ യാത്ര അയപ്പിൽ എന്തെന്നില്ലാത്ത ഒരു ആനന്ദം. കൂട്ടുയോചിപ്പിക്കാനാകാത്ത പോലെ അക്ഷരങ്ങൾ എന്നെ ആക്രമിക്കുന്നു ഒന്നും പറയാനാകുന്നില്ല സ്വാതന്ത്ര്യം ഒരു പുത്തൻ നാവ്വോഥാന സൃഷ്ടിയ്യാണ്. ആ സൃഷ്ട്ടിയിൽ സ്വപ്നങ്ങൾ നെയ്തു ജീവിക്കുകയാണ്ജി നമ്മൾ. ആവുന്നില്ല, മടങ്ങുന്നു യാത്രചോദിക്കാതെ എന്റെ പ്രിയപ്പെട്ട സഹയാത്രികനോടും, പ്രകൃതിയോടും ഒരുപാട്ട് യാത്രയുടെ കൈപ്പട സാക്ഷിയായ എന്റെ സഹയാത്രികനിൽ ഞാൻ അവസാനമായി ഒന്നും കുറിക്കുന്നില്ല.

പറയാൻ ബാക്കിവച്ചത് ഇനി പകൃതി പറയട്ടെ എന്റെ മനസ്സി ഞാൻ ഉപേക്ഷിക്കുന്നു, പുത്തൻ നവോത്ഥാന യാത്രയിലേക് കുതിച്ചുയറാൻ പൂർവികർ പറഞ്ഞ യാത്രകളും ഞാൻ കണ്ട യാത്രകളും ഇനി ഒന്നിക്കുന്നു. മരിക്കുന്നില്ല ഞാൻ, മടക്കം മാത്രം, ഒരിക്കലും മടങ്ങാത്ത മടക്കം. എന്നോ വിതുമ്പുന്നു. കണ്ണീർ പൊലിയുന്നു... പുത്തൻ നവോത്ഥാനമേ നിനക്ക് വരവേൽപ്പിനായി ഒരുക്കങ്ങൾ ഒരുങ്ങുന്നു. മനസ്സേ , നിന്നെ ഞാൻ തേടുന്നു....പറയു എന്താണ് ഞാൻ സൃഷ്ടിച്ച മാറ്റം.... പറയു.....

-Shirin A.S

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"Your 'hand' holds the brush to paint the canvas of your future."

THE GUIDANCE WE PROVIDE IS THE COMPASS THAT GUIDES YOU TO YOUR DESTINATION