STELLA MARY'S COLLEGE OF ENGINEERING

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai,Accredited by NAAC and NBA(MECH & CSE))

Aruthenganvilai, Kallukatti Junction Azhikal Post, Kanyakumari District-629202, Tamil Nadu

Subject: EC8811/Project work

S.No	Group No	Register Number	Student name	Supervisor Name	Project Title
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2		963520106025	Jenish J		
3		963520106303	Rexlin Nayagam P		
4	2	963520106002	Abinaya P	Mr.N.Michael Franklin	MACHINE VISION AND AI FOR REAL-TIME CROP MONITORING AND ADAPTIVE HARVESTING CONTROL
5		963520106009	Anusuya J		
6		963520106039	Santhya M		
7	3	963520106003	Abinaya S	Mr.K.Gopal Ram	INTERACTIVE AI BASED CHATBOT FOR MENTAL HEALTH TREATMENT
8		963520106013	Ashika A		
9		963520106017	Dhanusha S		
10	4	963520106004	Agash T	Mr.K.Gopal Ram	CAREER GUIDANCE APP FOR STUDENTS - AI ASSISTED
11		963520106007	Anand M		
12		963520106021	Jayaram C		
13	5	963520106005	Ahil S	Mrs.A.B.Evanjalin	SMART WIRELESS NOTICE BOARD
14		963520106042	Viswa R L		
15		963520106302	Rarojin S		
16	6	963520106006	Amat Raseeth J	Mrs.A.B.Evanjalin	STUDY AND IMPLEMENTATION OF WIRED INTERCOM
17		963520106031	Nagaraj K		
18		963520106029	Livingston I		
19	7	963520106015	Bala Devika B	Mrs.M.L.Ashly Beby	IOT BASED GAS MONITORING AND ENVIRONMENTAL CONTROL SYSTEM FOR POULTRY FARMS
20		963520106037	Sabitha S		
21		963520106008	Anisha L		
22	8	963520106019	Farhan B	Mrs.M.L.Ashly Beby	VEHICLE SPEED CONTROL USING WIFI MODULE
23		963520106035	Rahul Bright Prince B		
24		963520106036	Rijo Aagash A		
25	9	963520106032	Naresh Kumar M P	Mrs.V.Jino Shiny	WIRELESS BYPASS CHARGING SYSTEM FOR E - PASS VEHICLE USING DARRIVS
26		963520106038	Sanjay Kumar S		
27		963520106010	Arul S		
28	10	963520106023	Jenika S	Mrs.V.Jino Shiny	SECURING MEDICINAL PLANT SUPPLY CHAIN THROUGH ML ENHANCED IMAGE PROCESSING
29		963520106022	Jemi J A Benisha		
30		963520106030	Manju K M		
31	11	963520106014	Aswin N	Mr.G.Biju George	GUIDOTRONIC BOT INTEGRATE WITH LIDAR AND AI VOICE ASSISTANCE
32		963520106026	John Teni Jio F		
33		963520106034	Praganesh M		
34	12	963520106024	Jenisa Devi U	Mrs.P.Baby Shola	INTELLIGENT ROBOTS FOR SHOPPING WITH SMART TROLLEY SYSTEM USUAL EDGE COMPUTING IOT
35		963520106028	Kaviya S		
36		963520106041	Vijayasree V		
37	13	963520106012	Ashika Ram Sree N A	Mrs.E.Ramola	UNMANNED AIRCRAFT IN HUMAN DETECTION
38		963520106018	Divya Varshini R		
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REVOLUTIONIZING WASTE MANAGEMENT WITH SMART BINS

A PROJECT REPORT

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In

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MAY 2024

ABSTRACT

The proliferation of Internet of Things (IoT) technologies has opened up unprecedented opportunities for innovation across various sectors, and waste management is no exception. Traditional waste management systems often suffer from inefficiencies, lack of real-time data, and high operational costs. In response, this paper proposes the implementation of IoT-based smart bins to revolutionize waste management practices.Smart bins equipped with sensors and connectivity capabilities can monitor fill levels, detect types of waste, and communicate this data in real-time to a central management system. This enables waste collection teams to optimize their routes, leading to cost savings and reduced carbon emissions associated with unnecessary trips.Moreover, IoT-enabled smart bins can facilitate proactive maintenance by alerting authorities when bins are nearing capacity or malfunctioning, ensuring timely intervention and uninterrupted service. Additionally, by analyzing the data collected from smart bins, municipalities can gain valuable insights into waste generation patterns, allowing for informed decision-making and targeted waste reduction initiatives.Furthermore, incorporating smart bins into waste management systems promotes sustainability by encouraging recycling and proper waste disposal practices. Through incentives such as rewards programs or educational campaigns triggered by smart bin data, communities can foster a culture of environmental responsibility and resource conservation.In conclusion, the integration of IoT technology into waste management through smart bins presents a transformative opportunity to enhance efficiency, reduce costs, and promote sustainability. By leveraging real-time data and intelligent analytics, municipalities can create cleaner, greener, and more resilient cities for the benefit of current and future generations.

INNOVATIVE INTEGRATION OF MACHINE VISION AND AI FOR REAL-TIME CROP MONITORING AND ADAPTIVE HARVESTING CONTROL SYSTEM TO MITIGATE LOSSES IN HARVESTING OPERATIONS

A PROJECT REPORT

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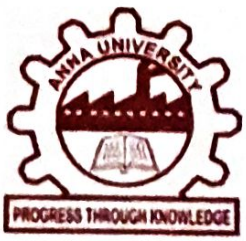

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ABSTRACT

This project proposes the establishment of a total quality control system based on the most sophisticated technology. By using the Edge Impulse algorithm, the ESP32-CAM module can be trained for the real-time video monitoring mobile application for crop fields. The data gathered is then sent to an Arduino board, which processes it and makes any necessary changes. An essential point in the system is its power supply cable that uses a relay in order to properly control the power distribution to the different parts. The dependability of the monitoring and harvesting tools is provided with this. The crop losses during harvesting are intended to be collected by a vacuum pump for that purpose to minimize wastage and maximize yield. The vacuum pump efficiently suck in any crops that may be fallen or left behind during harvesting, thus, preventing any possible loss and wastage rate. The crops are then harvested and put into a container so that they will remain fresh and unspoiled until they are cut or distributed. Storage through this deliberately designed mechanism makes it possible to preserve the quality of the harvest, boosting its value and marketability.

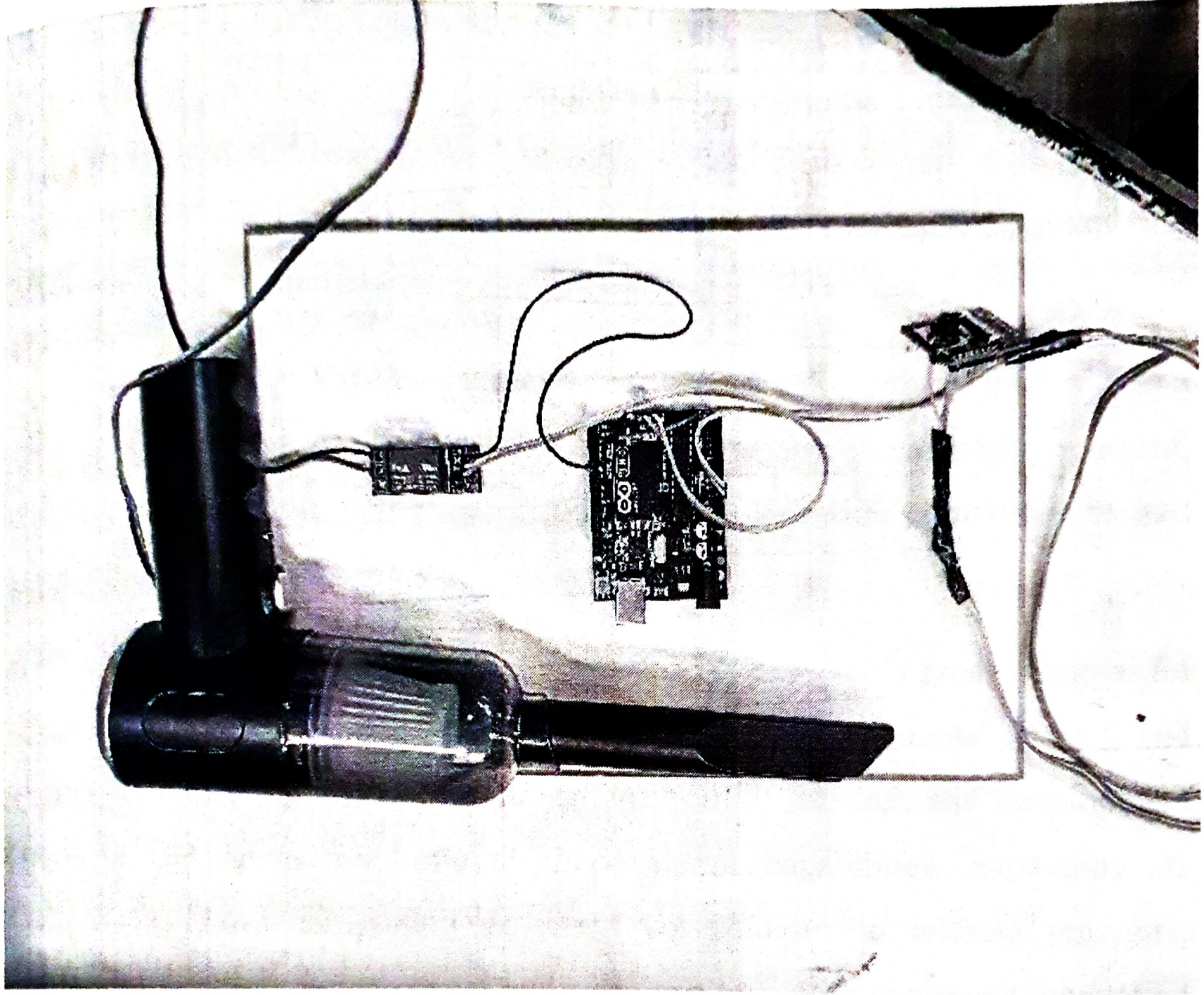

Fig:6.1 WORKING MODEL

AN ENHANCED INTRACTIVE CHAT-BOT FOR MENTAL HEALTH TREATMENT USING ML

A PROJECT REPORT

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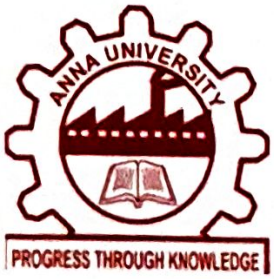

MAY 2024

ABSTRACT

Recent years have witnessed a surge in interest in utilizing artificial intelligence (AI) to enhance communication between citizens and government bodies. One promising avenue is deploying AI-guided Chatbots within E-Service centers, acting as one-stop shops for citizens accessing government services. These Chatbots, driven by advanced Natural Language Processing (NLP) and Machine Learning (ML) algorithms, facilitate seamless interaction, personalized assistance, and information dissemination. Leveraging technologies like GPT-3, citizens can engage with Chatbots via text commands, accessing assistance anytime. This innovation streamlines processes, automating routine inquiries and transactions, thus optimizing resource allocation. By integrating AI, governments create more accessible, efficient, and citizen-centric service ecosystems, bolstering trust and transparency in governance. The implementation of AI-guided Chatbots in E-Service centers holds immense promise for revolutionizing the citizen-government interaction paradigm, enhancing service delivery, and fostering accountability.

CAREER GUIDANCE APP FOR STUDENTS – AI ASSISTED

A PROJECT REPORT

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ABSTRACT

The project proposes an AI-based career guidance application that uses machine learning algorithms to predict job eligibility based on students' education qualifications and skill sets. The application collects relevant data from students, preprocesses it, and uses advanced machine learning techniques to train a predictive model. The model learns patterns and relationships between education qualifications, skill sets, and job eligibility. Guidance systems have widespread applications in both academics and industry. Traditionally performance of guidance system has been measured by the precision. Most of the students across the globe are always in confusion after they complete higher secondary and therefore, the stage where they need to settle on an appropriate career path. The students don't have adequate maturity to accurately understand what a private has got to follow so as to decide on a congenial career path. As we labor under the stages, we realize that each student undergoes a series of doubts or thought processes on what to pursuing the degree, which is that the single tallest question. Then comes the subsequent agony whether or not they have essential skills for the stream they need chosen. Our computerized career counselling system is employed to predict the acceptable department for a personal supported their skills which we've created in our system, then automatically they'll find yourself in choosing an appropriate course which is able to also reduce the failure rate by choosing a wrong career path.

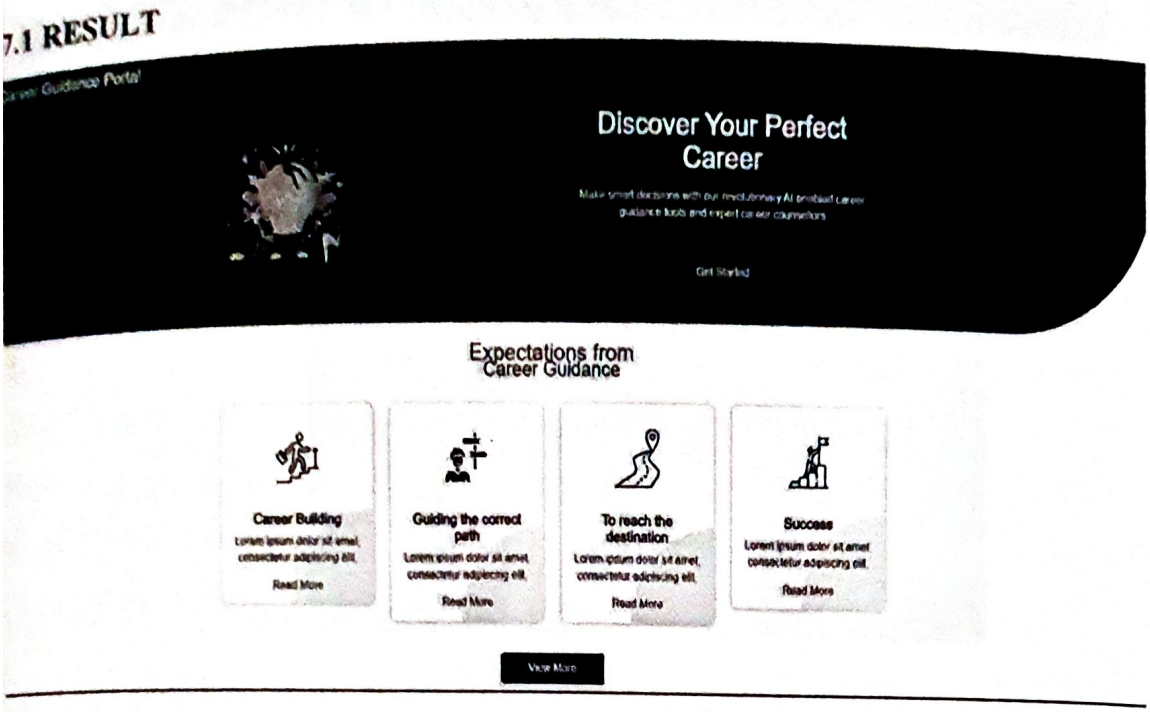

Fig.7.1 Career Guidance Portal in Front Html page

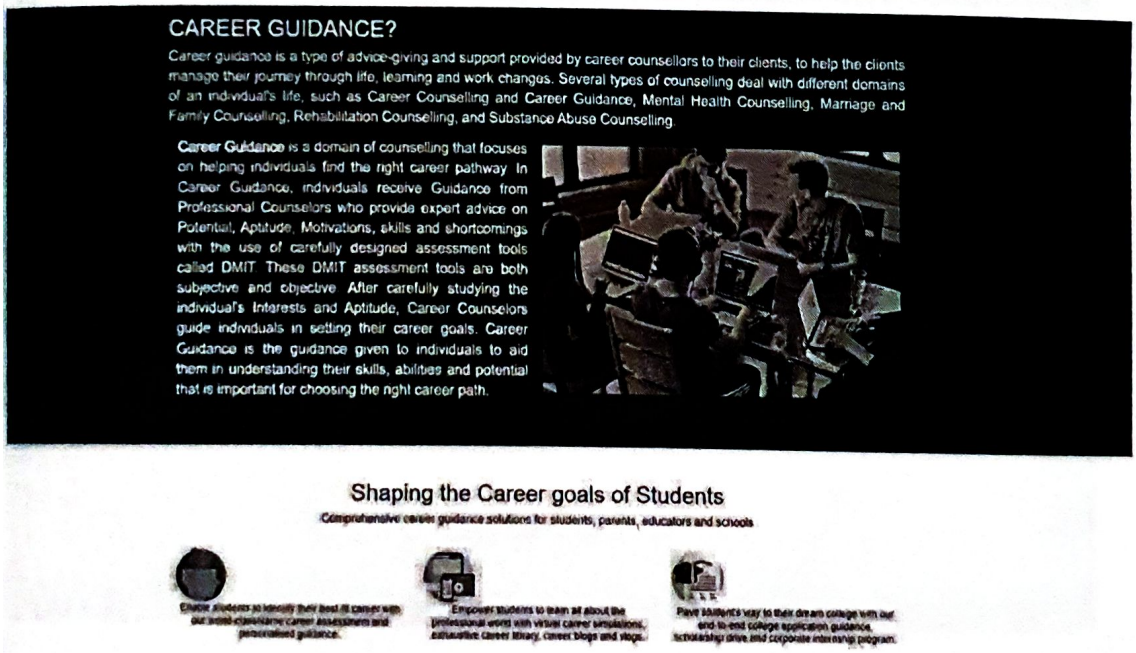

Fig.7.2 Description about the Career Guidance

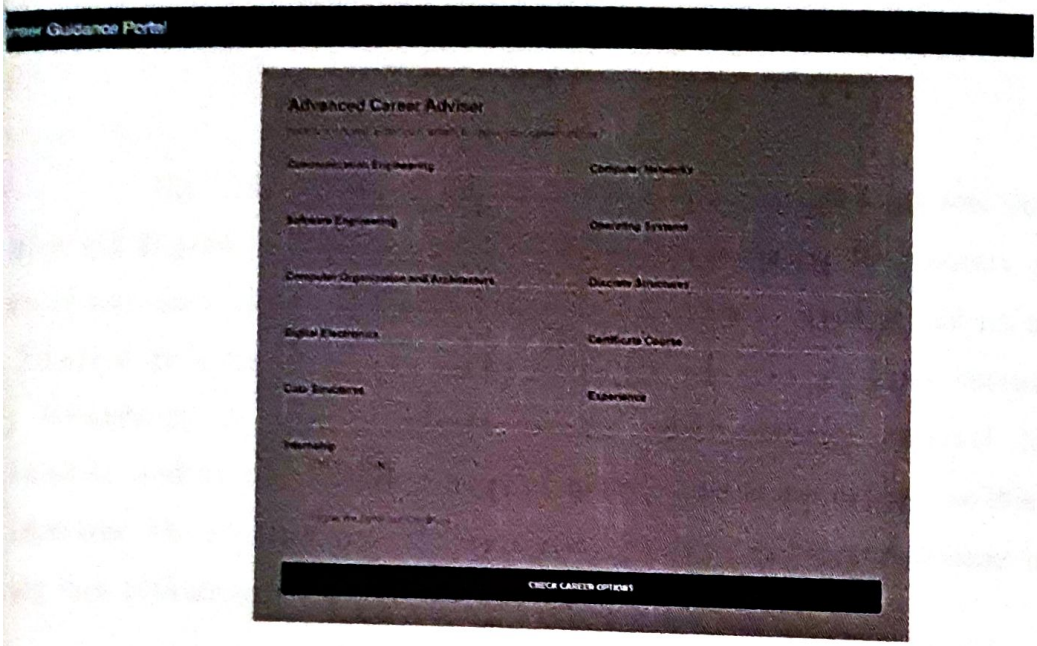

Fig.7.3 Enter the score of your Academic performance

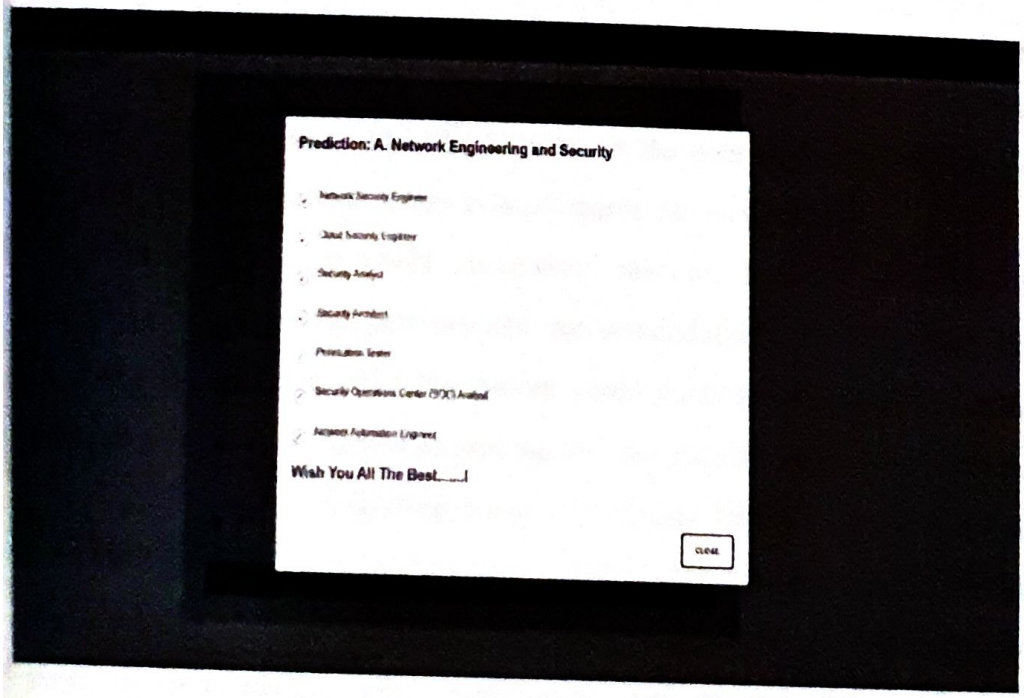

Fig.7.4 Display the Predicted Output

SMART WIRELESS NOTICE BOARD

A PROJECT REPORT

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MAY 2024

ABSTRACT

This project explores the utilization of a Raspberry Pi 3B+ in conjunction with a 32-inch monitor to create an interactive notice board system. The primary aim is to provide a cost-effective and customizable solution for displaying dynamic content in various environments such as offices, schools, and public spaces.

The report outlines the hardware setup, including the components required to connect the Raspberry Pi to the monitor. It discusses the selection and installation of digital signage software suitable for the project, along with instructions for content creation and configuration within the software. Additionally, options for enabling remote access to the Raspberry Pi for management purposes are explored.

Testing procedures and troubleshooting steps are provided to ensure the smooth operation of the notice board setup. Guidelines for ongoing management, maintenance, and future enhancements are also discussed. This project serves as a practical guide for individuals or organizations seeking to implement a versatile and efficient notice board system using readily available hardware and software components.

CHAPTER -6

6. RESULT AND DISCUSSION

6.1 SCREENSHOT

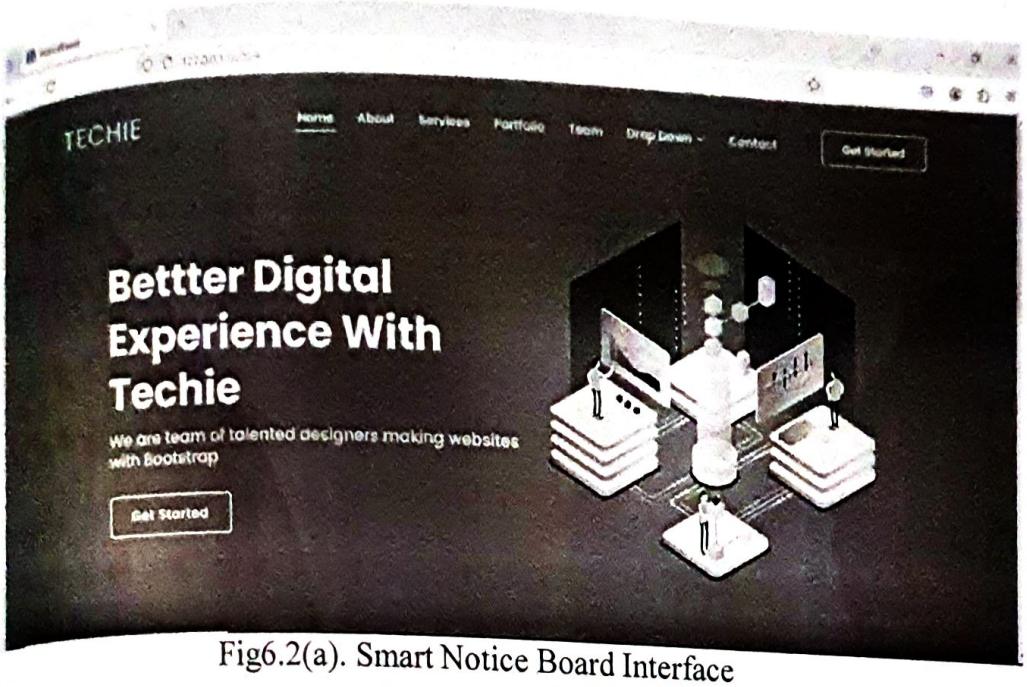

Fig6.2(a). Smart Notice Board Interface

Step 1:

The notice board details can be updated here

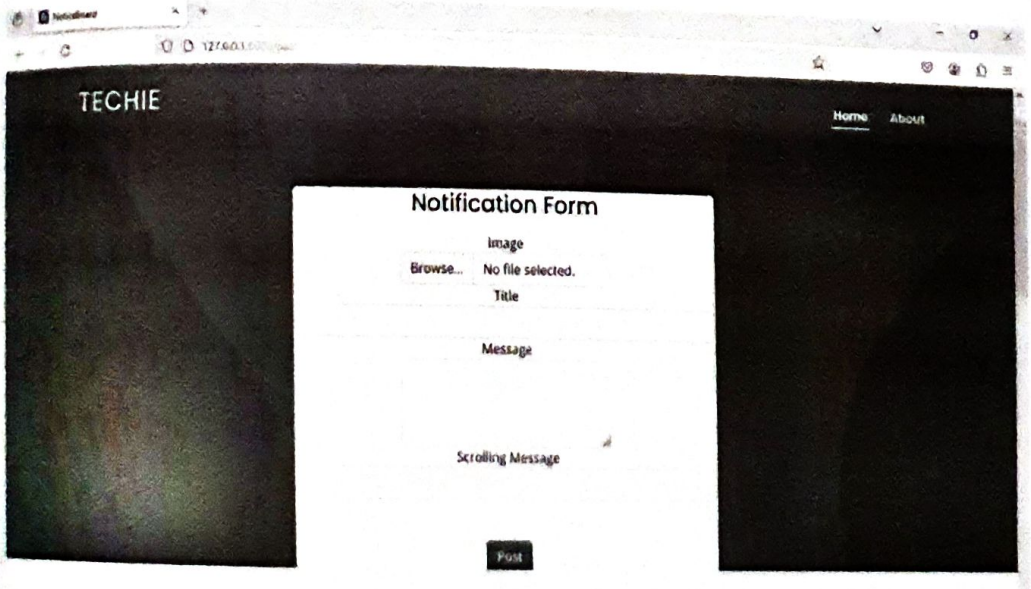

Fig6.2(b).notification form

Step 2:

After adding the information on the website that we developed, the final output gets displayed

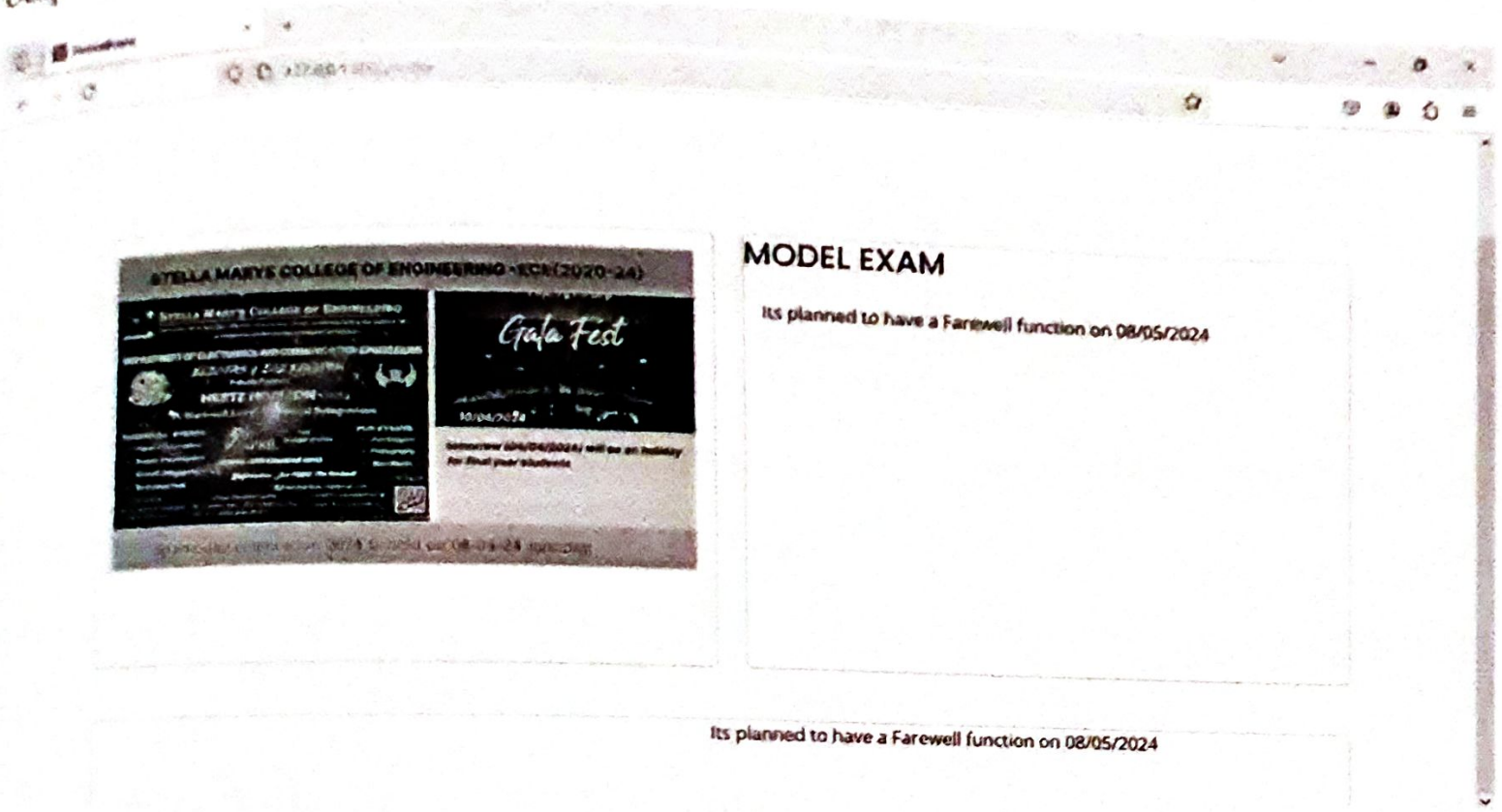

Fig. Final Output on display

STUDY AND IMPLEMENTATION OF WIRED INTERCOM

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MAY 2024

ABSTRACT

This project explores the deployment of wired intercom systems, vital for seamless communication in residential, commercial, and industrial settings. Emphasizing the reliance on physical cables for signal transmission, wired intercoms offer robustness and security. Beginning with meticulous planning and design, the project considers factors like building layout and endpoint distribution to determine system requirements. Installation entails precise cable laying and integration with existing infrastructure, ensuring seamless operation. Once deployed, the system enables bidirectional voice transmission and potential remote door access control. Its reliability suits environments requiring uninterrupted communication, such as emergency response centers and healthcare facilities. Additionally, wired intercom systems offer scalability and adaptability, allowing for expansion to meet evolving needs. Leveraging advancements, sophisticated features like video surveillance integration enhance functionality. This project highlights the indispensable role of wired intercom systems in fostering connectivity, security, and convenience in modern buildings and facilities.

CHAPTER -6

RESULT AND DISCUSSION

Fig 6.1 Wired Intercom setup

IOT BASED GAS MONITORING AND ENVIRONMENTAL CONTROL SYSTEM FOR POULTRY FARM

A PROJECT REPORT

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MAY 2024

ABSTRACT

This project introduces an IoT-based gas monitoring and environmental control system tailored for poultry farms, aimed at addressing the challenges posed by harmful gas accumulation such as ammonia (NH_3) and hydrogen sulfide (H_2S). The system utilizes an ESP32 microcontroller along with specialized gas sensors (MQ135 for ammonia and MQ136 for hydrogen sulfide) to provide real-time monitoring of gas concentrations within poultry houses. Additionally, a temperature sensor is integrated to monitor ambient conditions. The system employs relay modules for automated control of exhauster fans and motors to mitigate gas buildup, ensuring the health and safety of both birds and farm workers. Real-time alerts are delivered to farm operators via a GSM module in case of abnormal gas levels. Furthermore, data collected by the system is transmitted to a cloud service for remote monitoring, storage, and analysis. This IoT-based solution offers a comprehensive approach to gas monitoring and environmental control in poultry farming, enabling efficient management and optimization of poultry house conditions while enhancing overall farm productivity and sustainability.

CHAPTER 6

RESULT AND DISCUSSION

6.1 WORKING MODEL

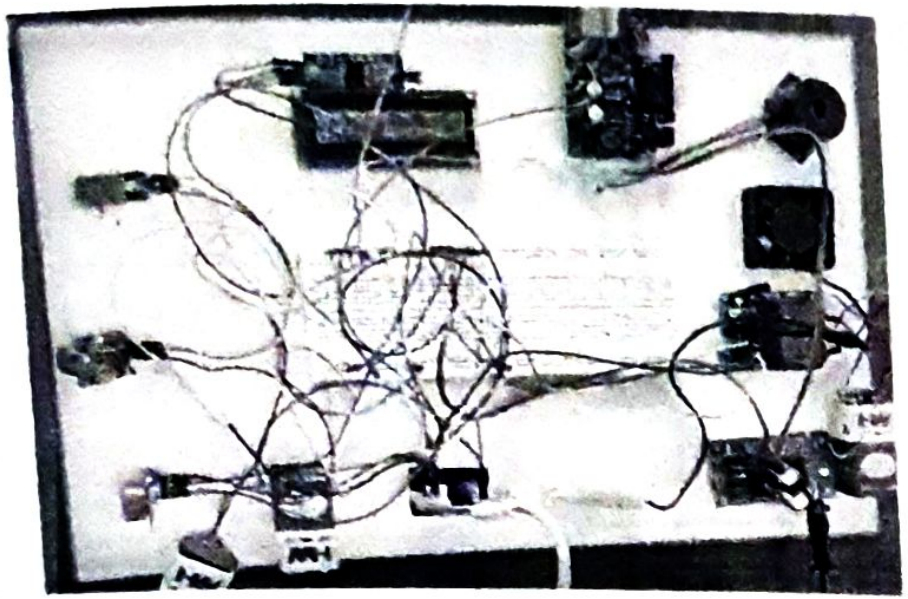

Fig 6.1 Working Model

VEHICLE SPEED CONTROL SYSTEM USING WI-FI MODULE

A PROJECT REPORT

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MAY 2024

Abstract

Automatic Vehicle Speed Control System is designed to control the speed of the vehicle in specific zones to avoid the accidents in the low-speed areas. In this system the low-speed zone is considered to be the 100 meter earlier to the traffic signal. The case study and implementation is based on the light vehicle speed control, when the vehicle is running with full speed and gets entered into the low-speed zone the speed of it will be automatically reduced to the allowed speed in low speed zone. The microcontroller will interface with the sensors to detect the speed of vehicle and based on this input the controller will take appropriate action and generate a control signal for the vehicle control system which then will activate the mechanism of the Speed control in the vehicle and the speed of the vehicle is reduced to the required speed in that zone.

CHAPTER -6

RESULT AND DISCUSSION

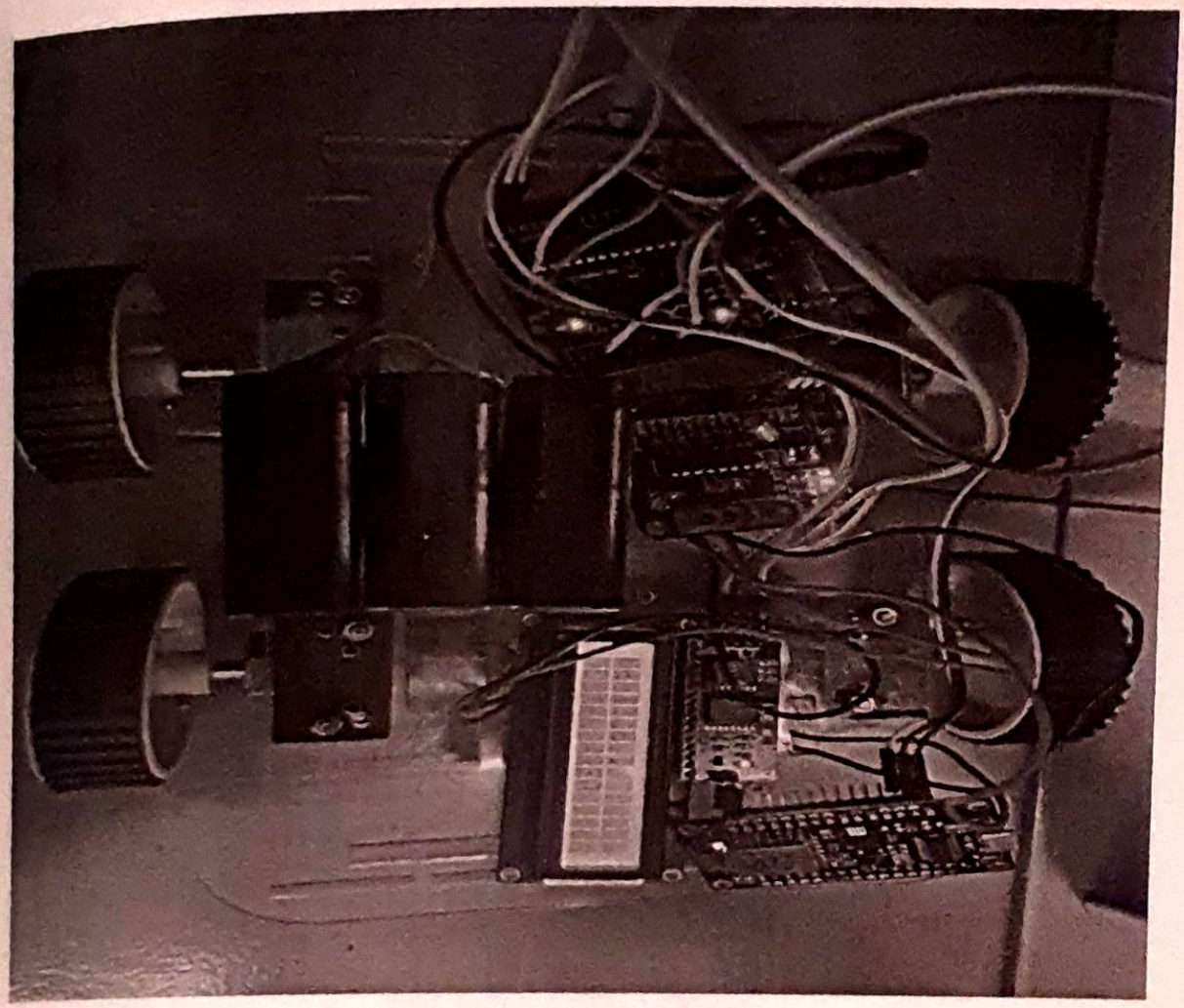

Fig 6(a): Final Output

WIRELESS BYPASS CHARGING SYSTEM FOR E-VEHICLE USING DARRIEUS

A PROJECT REPORT

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ABSTRACT

This paper presents a review of the existing charging technologies for EVs. followed by a presentation of a proposed solution based on several distributed transmitter coils supplied by parallel resonant inverters sequentially energized depending on the position of receiver coil mounted on the vehicle. This By using this technique, Inductive Power Inductive Power Transfer (IPT) Technology employs this technique. A ground-breaking technique called magnetic induction wireless bypass charging aims to do away with the requirement for physical connections between the charging gadget and the charger. Power is wirelessly delivered from the charging station to the smartphone via the principle of magnetic induction, making charging easy and convenient. With this method, energy is transferred between coils installed in the charging station and the receiving device using electromagnetic fields. The coils of the device resonate at the same frequency This trend is mostly the result of the EU Air Quality Directive of 2008's strict CO2 footprint limitations, which internal combustion vehicles are unable to meet. These regulations cover not just light cars but also trucks and buses, which are significant producers of particulate matter (PM) and nitrogen oxide pollution in urban areas. In the near future, the widespread usage of EVs will significantly reduce pollution in large cities, but for the time being, prospective customers are seriously concerned about the limited number of battery charging stations and range anxiety when it is

near the charging station. This causes a current to flow through the receiver coil, charging the gadget's battery. The general concept of wireless bypass charging is to give consumers seamless experiences by enabling them to charge their gadgets without being constrained by cords or plugs. This invention has the potential to revolutionise a number of sectors, including consumer electronics, automotive, and healthcare, by providing increased mobility, convenience, and efficiency in the way that gadgets are powered.

Figure 6.1: Receiver setup

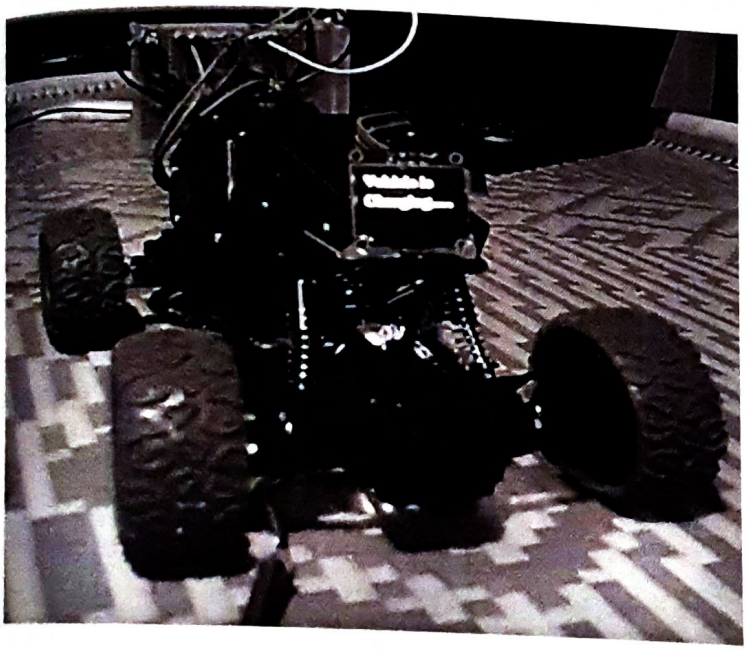

Figure 6.2: Final output of project

SECURING MEDICINAL PLANT SUPPLY CHAIN THROUGH ML-ENHANCED IMAGE PROCESSING

A PROJECT REPORT

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MAY 2024

ABSTRACT

Herbal plants are crucial to human existence for medical reasons, and they can also provide free oxygen to the environment. Many herbal plants are rich in therapeutic goods and also it includes the active elements that will benefit future generations. The sustainable sourcing of medicinal plants is crucial for the pharmaceutical and herbal medicine industries. However, the identification and traceability of these plants in the supply chain pose significant challenges. This project proposes an innovative approach that combines machine learning (ML) techniques for medicinal plant detection with supply chain management strategies to ensure transparency, quality, and sustainability. The project focuses on optimizing the entire lifecycle of medicinal plants, from cultivation to distribution, leveraging advanced image processing algorithms. By employing high-resolution imaging techniques, the system aims to enhance plant health monitoring, disease detection, and growth assessment in medicinal plant cultivation. Additionally, image processing algorithms facilitate the automation of harvesting processes, ensuring optimal timing for maximum yield and potency of medicinal compounds. The system extends its functionality to the supply chain by using image recognition to assess the quality of harvested plants, streamline sorting processes, and monitor transportation conditions. This holistic approach aims to improve the overall efficiency of the medicinal plant industry, promoting sustainability, reducing wastage, and ensuring the delivery of high-quality plant-derived pharmaceuticals to meet growing healthcare demands. The integration of image processing technologies in medicinal plant management presents a transformative solution that aligns with the contemporary emphasis on precision agriculture and sustainable healthcare practices.

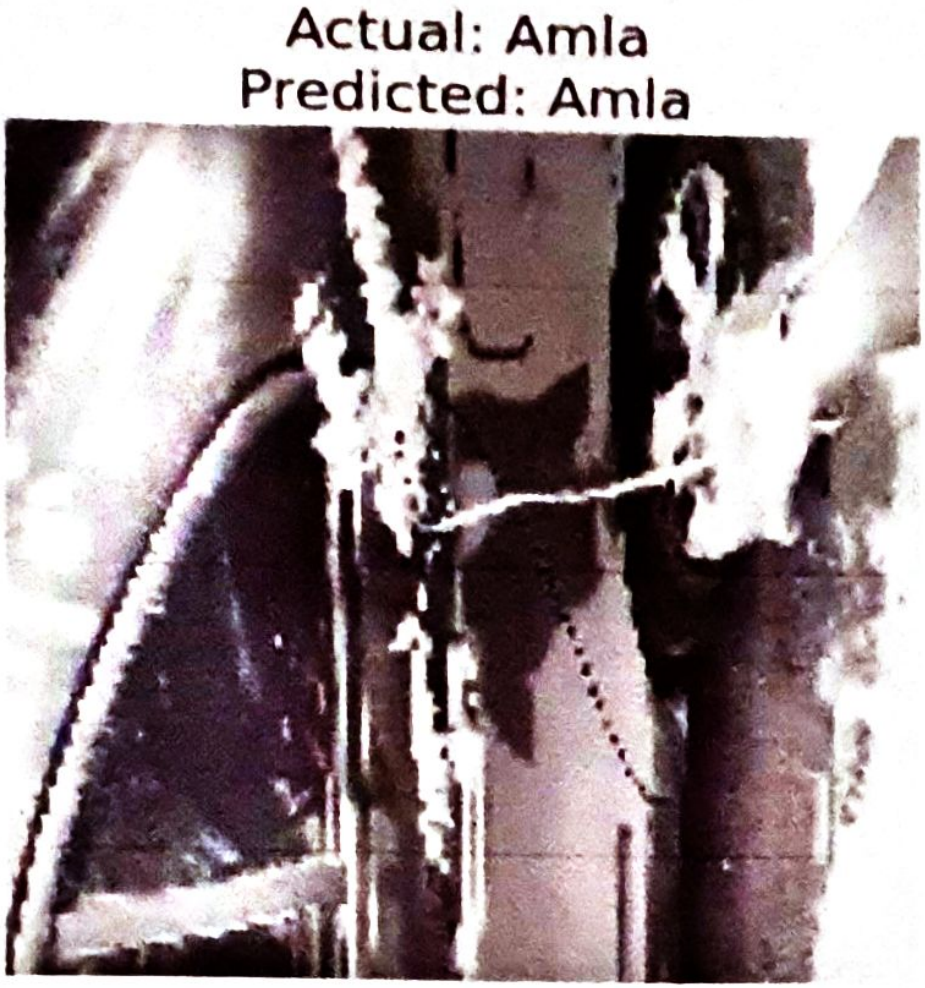

Fig 7.8 Sample Output

GUIDOTRONIC BOT INTEGRATE WITH LIDAR AND AI VOICE ASSISTANCE

A PROJECT REPORT

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MAY 2024

ABSTRACT

To boost the efficiency of voice assistant systems by fusing AI, LiDAR, and a guiding bot, thus providing us with a multitude of solutions and good user experience. The primary role of Guidotronic Bot is to initiate conversations and translate the natural language into the vocabulary comprehensible by the computer. With enhanced capabilities provided by LiDAR technology and accurate laser measures, the bot's perception ability becomes more and more advanced. Thanks to the artificial intelligence techniques such as machine learning and neural networks, the system improves its comprehension of the gps position and context during the provided query. Now, robot uses lidar technology to recognize objects, obstacles, and relations between objects right immediately. It uses its spatial knowledge to determine the real world, obtain information that is relevant to the context, as well as make actions based on the location similarly as a human. In addition to that, the system learns its decision-making, languages and user-oriented help from by AI algorithms that are able to facilitate understand the user interactions. Integration, that gives a bot the ability to perceive spatial intelligence creates exciting evolving voice channels for shopping stores and houses, voice controlled self-driving cars etc. where spatial awareness is essential. Besides, it tends to make the world more easily accessible for the visually impaired by ensuring safe movement and providing geographical information

CHAPTER 7

RESULT AND DISCUSSION

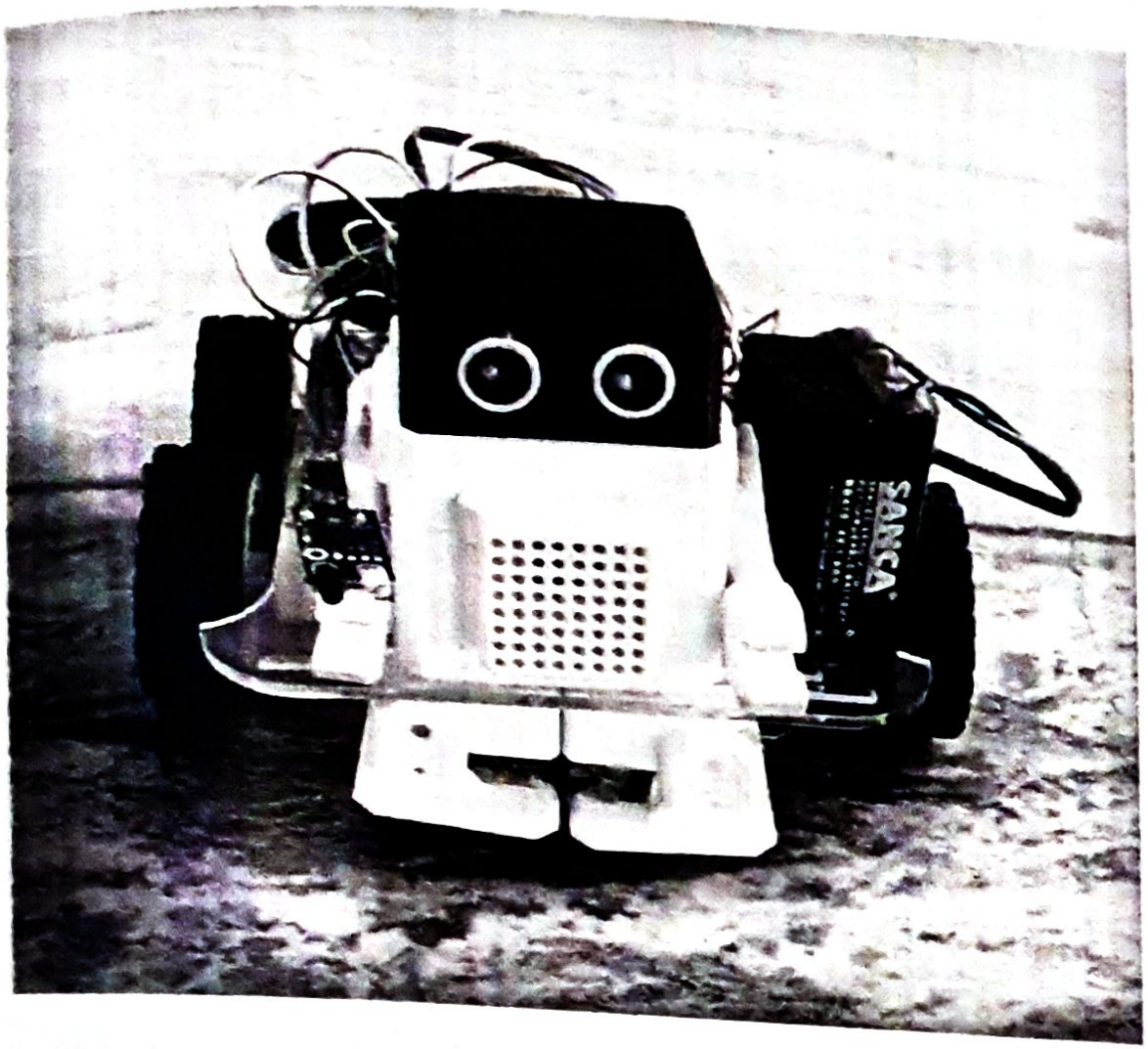

Fig 7.1 Guidotronic Bot

INTELLIGENT ROBOTS FOR SHOPPING WITH SMART TROLLEY SYSTEM USING EDGE COMPUTING IOT

A PROJECT REPORT

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BACHELOR OF ENGINEERING

IN

ELECTRONICS AND COMMUNICATION ENGINEERING

STELLA MARY'S COLLEGE OF ENGINEERING,

ARUTHENGANVILAI

ANNA UNIVERSITY: CHENNAI 600 025

MAY 2024

ABSTRACT

A robotized shopping assistance system has been developed to provide a user-friendly and inclusive shopping experience for individuals with disabilities or special needs. The system uses robotic technology to navigate through stores, locate desired items, and complete the shopping process with minimal assistance from human attendants. Key features include autonomous navigation, user interaction, item identification, retrieval assistance, checkout support, and accessibility features. The system prioritizes user autonomy, convenience, and inclusivity, promoting independence and empowerment for individuals with disabilities or special needs. By addressing unique challenges in traditional retail environments, the system aims to create a more inclusive and accessible shopping experience.

CHAPTER 6

RESULT AND DISCUSSION

Whenever the customer using this cart is adding a product into the shopping
t the product that is attached with RFID tag is scanned and the details re-
ired are fetched. These details are then fed into the microcontroller and based
the code the microcontroller then produces a bill with required fields in it.
iis bill gets updated within no time the product gets added to it. The bill is
en displayed LCD screen viewing the detailed bill of product added and then
oss check for the product to be added. The product can also be removed from
irt, when the customer wants to remove a product he can use the push button
id scan it so that product is removed from the bill.

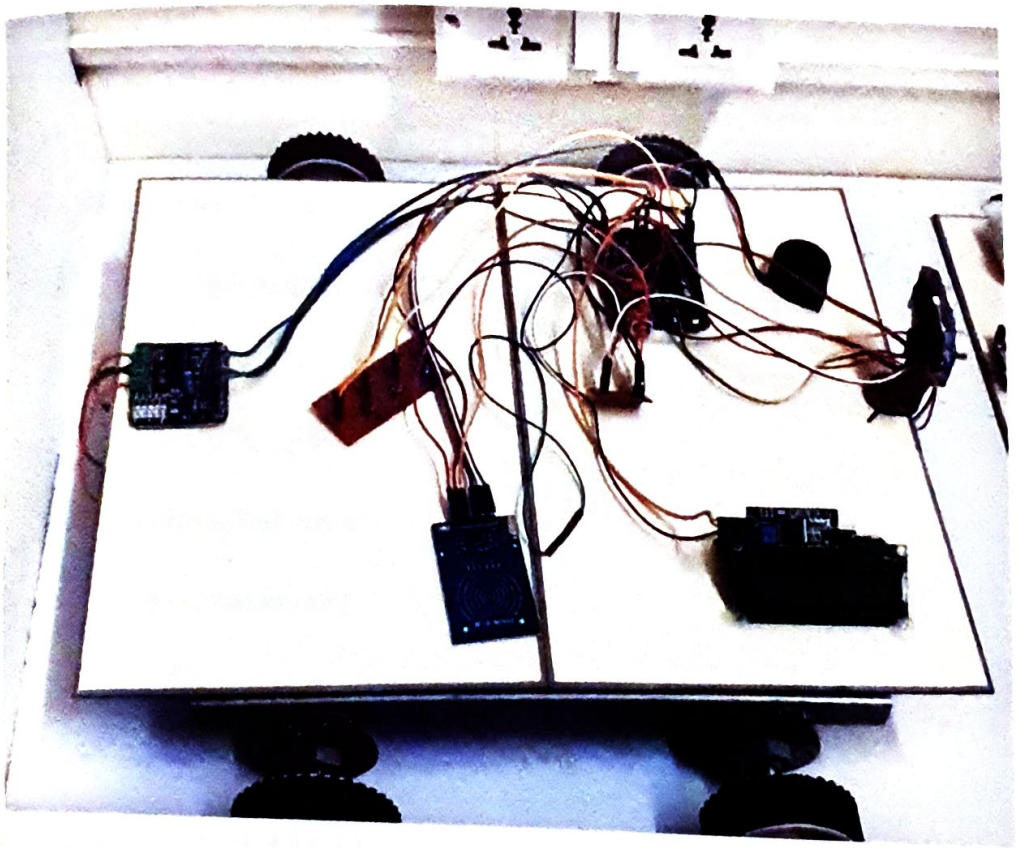

FIG 6.1 OUTPUT

UNMANNED AIRCRAFT IN HUMAN DETECTION

A PROJECT REPORT

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ABSTRACT

The development of human detection drones represents a significant advancement in Unmanned Aerial Vehicle (UAV) technology, offering innovative solutions for a wide range of applications, including search and rescue operations, surveillance, and security. This abstract provides an overview of the design, components, functionalities, and potential applications of human detection drones equipped with BLDC motors, GPS modules, flight controllers, cameras, Pico controllers, and GSM modules. Firstly, the core components of a human detection drone include a Brushless DC (BLDC) motor, which serves as the propulsion system, enabling Vertical Take-Off and Landing (VTOL) capabilities for efficient aerial mobility. Integrated with a GPS module, the drone can navigate autonomously and accurately locate human targets within a specified area. In search and rescue operations, these drones can quickly survey large areas and identify individuals in distress, providing vital assistance to rescue teams. In surveillance and security, drones enhance perimeter monitoring, crowd management, and threat detection, bolstering safety measures in public spaces, events, and critical infrastructure. Furthermore, in disaster management, human detection drones aid in assessing damage, locating survivors, and coordinating relief efforts, optimizing resource allocation and response.

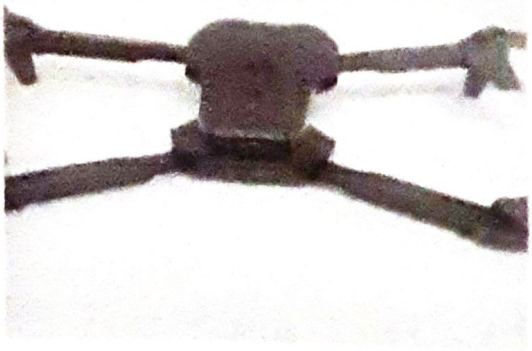

Fig: 6.1 Working Model

6.1.2 RECEIVER SECTION

6.1.2.1 GPS:

Navigation, guiding, and control, Unmanned Aerial Vehicles (UAVs) make heavy use of the Global Positioning System (GPS). UAVs use GPS to track their location, speed, and temporal alignment. Route planning, autonomous flight, and precise payload delivery all depend on this data. GPS enables UAVs to navigate, keep a steady flight path, and carry out tasks precisely.

6.1.2.2 RASPERRYPI PICO:

The Raspberry Pi Pico has multiple applications in unmanned aerial vehicles (UAVs), including communication, image processing, data logging, and flight control. Its GPIO capabilities, compact size, and low power consumption make it a good fit for embedded applications in unmanned aerial vehicles.

6.1.2.3 GSM:

UAVs can communicate via the Global System for Mobile Communications (GSM) to transmit data, perform telemetry, and provide command and control. Long-distance communication between the operator and the UAV facilitates remote operation and monitoring. Furthermore, real-time UAV surveillance and tracking are also possible using GSM.