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Number of Electronics and Communication Engineering Student Undertaking Projects/Field Work/ Internship for the Academic Year 2022-23

Programme Name &Code: Electronics and Communication Engineering &106

Sl. No	Register Number	Name of The Students	Project Title
1	912019106001	ABIRAMI S	Fabrication of Dual Process Agriculture Robot
2	912019106702	SWETHA P	
3	912019106005	DHILP DHARSHAN T	IOT Enabled Automated Effective Incubator System with Sub Bag System for Child Caring
4	912019106003	BALAKARTHIKEYAN P	
5	912019106002	ARTHI K	Crop Fertilizing and Monitoring System
6	912019106007	KANNAGI N	
7	912019106008	KANNAN KARUPPAIAH J	Weather Forecasting Using Deep Learning Algorithm
8	912019106011	MANORAJ S	
9	912019106009	MAHESWARI S	Finding Osteoarthritis Using Thermal Image Processing
10	912019106013	RAMACHANDRAN M	
11	912019106012	PANDIRAMAN G	Embedded Design of Block Box for Vehicle Accident Alert
12	912019106014	RAM KUMAR R	
13	912019106016	VARSHA S	Design Of Smart Agriculture Monitoring System Based on IOT Using Lorawan Technology
14	912019106004	DHARANI S	
15	912019106701	PRIYADHARSHINI M	

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FABRICATION OF DUALPROCESS AGRICULTURAL ROBOT

A PROJECT REPORT

Submitted by

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In partial fulfillmen tof the award of the degree

of

BACHELOR OF ENGINEERING

in

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ABSTRACT

The agriculture industry is constantly looking for ways to improve the efficiency and productivity of farming practices. One solution to this problem is the fabrication of a dual-purpose agriculture vehicle for seeding and plowing. This vehicle would be designed to perform both tasks in a single pass, reducing the time and effort required for planting crops.To fabricate such a vehicle, a combination of mechanical engineering and agricultural science would be required. The vehicle would need to have a powerful engine, good ground clearance, and a comfortable operator's cabin. The dimensions of the vehicle would be determined by the size of the fields and the type of crops being planted.The seeding mechanism of the vehicle would be designed to distribute seeds uniformly across the land, using a hopper and a metering mechanism. The ploughing mechanism would be a series of blades or disks that turn over the soil, creating furrows for planting. Both mechanisms would be integrated into a single system that can be controlled by the operator using hydraulics.Safety features such as roll bars and seat belts would be added to protect the operator in case of an accident. Once the vehicle is built, it would be tested on a variety of terrains to ensure that it can handle the load and operate safely.Overall, the fabrication of a dual-purpose agriculture vehicle for seeding and plowing is an innovative solution to increase the efficiency of farming practices. By combining two important tasks into a single pass, farmers can save time and increase productivity, leading to a more sustainable and profitable agricultural industry.

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CHAPTER 9

CONCLUSION

Dual-purpose agriculture robots for seeding and plowing have the potential to revolutionize the way that crops are planted and harvested. These robots can reduce labor costs, increase efficiency, and optimize crop growth and yield. They work by using a combination of sensors, mapping technology, and advanced algorithms to navigate and perform tasks in the field.However, there are also some challenges and limitations associated with these robots. They require significant upfront investment and may not be practical for all farming operations. They also require specialized training to operate and maintain, and may not be able to handle all soil and weather conditions.Overall, dual-purpose agriculture robots represent an exciting development in the field of agriculture technology, and are likely to become increasingly important in the years to come as farmers seek new ways to increase productivity and reduce costs.

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IoT ENABLED AUTOMATED EFFECTIVE INCUBATOR SYSTEMWITH SUB BAG SYSTEM FOR CHILD CARING

A PROJECT REPORT

Submitted by

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ABSTRACT

The neonatal incubator is an apparatus that provides a closed and controlled environment for the sustenance of premature babies. But recently, many premature babies have lost their lives due to lack of proper monitoring of the incubator that leads to accidents. This project deals with the design of an embedded device that monitors certain parameters such as temperature rate of the baby, oxygen flow inside the incubator. The details are updated on the android app or web page of the hospital through IOT, so that proper actions can be taken in advance, to maintain the environment inside the incubator and ensure safety to the infant's life. So, the objective of this project is to overcome the above-mentioned drawbacks and provide a safe and affordable mechanism for monitoring the incubator.

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CHAPTER 7

CONCLUSION

Our original research is composed of both hardware and software butions. Our Handy incubator is designed to be portable, not heavy, and ffective. With the progress of our novel prototype of the Handy preterm t incubator, many lives could be saved. Due to the lack of cost-effective sive care methods for monitoring all vital signs and saving data and the of a system that can be held by hands, we took the challenge in designing handy and cost-effective infant incubator. Our design monitors the vital als (temperature, air quality) and displays them. Handyncubator ensures y and is cost-effective. Evaluated percentage of performance shows that it asses the existing intensive care methods

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CROP FERTILIZING AND MONITORING SYSTEM

A PROJECT REPORT

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ABSTRACT

This project presents an IoT-based crop fertilizing monitoring system using Arduino and Node MCU. The system is designed to measure the pH levels of soil to determine the nutrient levels of nitrogen (N), phosphorus (P), and potassium (K) and display them on an LCD display. The system also publishes this data to the ThingSpeak cloud platform for remote monitoring. The system consists of an Arduino board, a pH sensor, an LCD display, and a Node MCU module. The pH sensor is used to measure the pH levels of the soil, which is then used to calculate the nutrient levels. The nutrient levels are displayed on the LCD display, and the data is also sent to the ThingSpeak cloud platform using the Node MCU module.

The ThingSpeak cloud platform provides a dashboard for remote monitoring of the nutrient levels of the crops. This enables farmers to monitor the nutrient levels of their crops remotely and take appropriate actions to improve crop yields. The system is designed to be low-cost and easy to use, making it accessible to small farmers who may not have access to high-end monitoring systems. The project demonstrates the potential of IoT-based systems in agriculture and highlights the benefits of remote monitoring for improving crop yields and reducing costs

CHAPTER 7

CONCLUSION AND FUTUREWORK

In conclusion, the Crop Fertilizing Monitoring System using IoT, Arduino, Node MCU, NPK Sensor, and LCD Display is a promising solution for farmers and the agricultural industry. By providing real-time monitoring of nutrient levels in soil and offering advanced data analysis tools, the system can help farmers optimize their fertilization practices, leading to increased crop yields and reduced waste. The system's cloud-based connectivity and user-friendly interface make it scalable and easy to use, even for farmers with limited technical expertise. The LCD display is a critical component of the system, providing a simple and efficient way to display real-time information to farmers. Overall, the Crop Fertilizing Monitoring System using IoT, Arduino, Node MCU, NPK Sensor, and LCD Display is an innovative solution that has the potential to revolutionize fertilization practices in the agricultural industry, leading to a more sustainable and efficient agricultural sector.

FUTURE SCOPE:

While the NPK sensor is a useful tool for monitoring nutrient levels in soil, there are other sensors that can provide additional information about crop health and soil conditions. For example, sensors for monitoring temperature, humidity, and moisture levels can provide valuable information to farmers, enabling them to make more informed decisions about fertilization practices. Advanced machine learning algorithms can be used to analyze the data collected by the system, enabling farmers to make more precise and accurate decisions about fertilization practices. These algorithms can be used to identify patterns and trends in the data, and to develop predictive models that can forecast crop yields based on current soil conditions. Precision agriculture technologies such as GPS mapping and drone imaging can be integrated with the system, providing farmers with a more detailed view of their crops and soil conditions. This information can be used to create customized fertilization plans that are tailored to the specific needs of each crop. Mobile applications can be developed to provide farmers with real-time updates on their crops and soil conditions, enabling them to monitor their crops from anywhere with an internet connection.

WEATHER FORECASTING USING DEEP LEARNING ALGORITHM

A PROJECT REPORT

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ABSTRACT

Weather forecasting plays a fundamental role in the early warning of weather impacts on various aspects of human livelihood. For instance, weather forecasting provides decision making support for autonomous vehicles to reduce traffic accidents and congestions, which completely depend on the sensing and predicting of external environmental factors such as rainfall, air visibility and so on. Accurate and timely weather prediction has always been the goal of meteorological scientists. However, the conventional theory-driven numerical weather prediction (NWP) methods face many challenges, such as incomplete understanding of physical mechanisms, difficulties in obtaining useful knowledge from the deluge of observation data, and the requirement of powerful computing resources. With the successful application of data-driven deep learning method in various fields, such as computer vision, speech recognition, and time series prediction, it has been proven that deep learning method can effectively mine the temporal and spatial features from the spatio-temporal data. Meteorological data is a typical big geospatial data.

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CHAPTER 7

CONCLUSION

Weather forecasting task has gained wide attention from many research communities due to its significant effect to global human life. Many efforts to build weather forecasting models have been proposed resulted in a vast number of publications available in literature. However, the nature of weather is so complex that impossible to be formulated in a single mathematical model. Despite many models have been proposed for weather prediction, most of these models used the same input and output variables. The result of this work, which exploited LSTM model variant, showed that moderating variables can improve prediction capability of the model. Based on the experiment results, the proposed self attention -LSTM model improved accuracy of basic LSTM in predicting visibility by 4.8% higher. That results showed that our approach works well in predicting visibility. Based on this results, the future steps of this research is to extend this approach for forecasting various weather variables using multidimensional timeseries.

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FINDING OSTEOARTHRITIS USING THERMAL IMAGE PROCESSING

A PROJECT REPORT

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ABSTRACT

Osteoarthritis is a degenerative joint disease that affects millions of people worldwide. Early detection and diagnosis of osteoarthritis is critical for effective treatment and management of the disease. In recent years, thermal imaging has emerged as a promising non-invasive technique for detecting osteoarthritis. However, existing techniques for osteoarthritis detection in thermal images suffer from several limitations, such as low accuracy, limited generalizability, and lack of interpretability. To address these challenges, we propose a novel approach for osteoarthritis detection in thermal images using the hybrid ResNet-SqueezeNet model deep learning architecture. The proposed approach involves pre-processing the thermal images to enhance their features, followed by segmentation to extract the region of interest. The segmented region is then fed into the hybrid ResNet-SqueezeNet model model, which is trained to classify the thermal image as normal or abnormal based on the presence of osteoarthritis.We evaluated the performance of the proposed approach on a dataset of thermal images collected from patients with osteoarthritis and healthy controls. Our results show that the proposed approach achieved an accuracy of 91%, sensitivity of 93%, specificity of 89%, and an AUC of 0.93, outperforming several state-of-the-art approaches. We also conducted extensive experiments to investigate the impact of different pre-processing techniques and hyperparameters on the performance of the hybrid SqueezeNet model.Moreover, we conducted a detailed analysis of the learned features and identified the regions of the thermal image that were most important for osteoarthritis detection.

CHAPTER 6

CONCLUSION

In this study, we proposed a novel approach for osteoarthritis detection in thermal images using the hybrid deep learning architecture. Our approach involves pre-processing the thermal images, segmenting the region of interest, and feeding it into the hybrid model, which is trained to classify the thermal image as normal or abnormal based on the presence of osteoarthritis. The hybrid ResNet-SqueezeNet model architecture combines the strengths of both ResNet and SqueezeNet models to achieve high accuracy with a smaller model size and fewer parameters. The ResNet blocks allow for the training of deep networks, while the SqueezeNet blocks reduce the dimensionality of the feature maps and allow for a smaller model size. The global average pooling layer and output layer are used to compute the final output of the model.Our experimental results demonstrated that the proposed approach achieved an accuracy of 91%, sensitivity of 93%, specificity of 89%, and an AUC of 0.93, outperforming several state-of-the-art approaches..The proposed approach can be used as a reliable and non-invasive tool for early detection and diagnosis of osteoarthritis, assisting clinicians in providing timely and effective treatment to patients. Future work can focus on validating the proposed approach on larger datasets and investigating its applicability to other joint diseases.

EMBEDDED DESIGN OF BLOCK BOX FOR VEHICLE ACCIDENT ALERT

A PROJECT REPORT

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Abstract

Nowadays most of the vehicle in a critical situation many vehicles faces accident, due to this lot of person lost their lives. Some people can be saved at that time, but because of a lack of information, time and place it may not be possible. Our project will provide an optimum solution to that drawback. The accelerometer sensor is used in a car alarm application Dangerous driving can be detected with an accelerometer sensor. This project used to collect crash recorder of the vehicle movements before, during and after a crash., an accident can be recognized from the accelerometer sensor. when an accident happened means immediately the vehicle number and person contact number will be transferred to the police control room or a rescue team using IOT. The police can immediately track reason from where the message came. Then after confirming the location, necessary action will be taken. This project will provide a solution to this situation

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CHAPTER 5

CONCLUSION

A working model of a Black Box with alert for road vehicles has been developed for vehicle accident detection and reporting. It is a system that uses embedded system developed for vehicle accident and reporting. It provides crucial information to emergency responders in the earliest possible time using IOT. The crucial time between the accident and getting victim medical attention can often be the difference between life and death. This system provides better safety rather than no safety. The system uses memory module to find the reason of the accident and send an alert notification to the recoded number.

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DESIGN OF SMART AGRICULTURE MONITORING SYSTEM BASED ON IoT USING LoRaWAN TECHNOLOGY

A PROJECT REPORT

Submitted by

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in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

in

ELECTRONICS AND COMMUNICATION ENGINEERING

PANDIAN SARASWATHI YADAV ENGINEERING COLLEGE
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Abstract

In agriculture, monitoring various environmental parameters such as temperature, humidity, and soil conductivity is essential for the healthy growth of crops. With the advent of the Internet of Things (IoT), it is now possible to remotely monitor these parameters and take necessary actions to optimize crop growth. This project involves the development of a system that monitors the temperature, humidity, and soil conductivity of a farm using sensors. The system also includes a water pump that can be controlled remotely to irrigate the crops as needed. An Arduino controller is used to collect the data from the sensors and control the water pump. The system communicates with the cloud via LoRa communication, allowing farmers to access the data remotely and make informed decisions regarding crop management. In conclusion, this project demonstrates the potential for IoT to revolutionize agriculture by providing farmers with real-time data on environmental parameters. With this information, farmers can make informed decisions to optimize crop growth, reduce water usage, and increase crop yields.

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CHAPTER 6

CONCLUSION

In agriculture, monitoring various environmental parameters such as temperature, humidity, and soil conductivity is essential for the healthy growth of crops. With the advent of the Internet of Things (IoT), it is now possible to remotely monitor these parameters and take necessary actions to optimize crop growth. This project involves the development of a system that monitors the temperature, humidity, and soil conductivity of a farm using sensors. The system also includes a water pump that can be controlled remotely to irrigate the crops as needed. An Arduino controller is used to collect the data from the sensors and control the water pump. The system communicates with the cloud via LoRa communication, allowing farmers to access the data remotely and make informed decisions regarding crop management.

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