WIFI BASED HOME AUTOMATION SYSTEM

A Project Report

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in partial fulfillment for the award of the degree

of

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ABSTRACT

This project presents a design and prototype implementation of new home automation system that uses Wi-Fi technology as a network infrastructure connecting its parts. The proposed system consists of two main components; the first part is the server (web server), which presents system core that manages, controls, and monitors users' home. Users and system administrator can locally (LAN) or remotely (internet) manage and control system code. Second part is hardware interface module, which provides appropriate interface to sensors and actuator of home automation system. Unlike most of available home automation system in the market the proposed system is scalable that one server can manage many hardware interface modules as long as it exists on Wi-Fi network coverage. System supports a wide range of home automation devices like power management components, and security components. The proposed system is better from the scalability and flexibility point of view than the commercially available home automation systems.

Keywords—Home automation, Wireless LAN, Wi-Fi, Micro-Controllers.

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ACKNOWLEDGMENT

The completion of project work brings with great sense of satisfaction, but it is never completed without thanking the persons who are all responsible for its successful completion. First and foremost, we indebted to the GOD ALMIGHTY for giving us the opportunity to excel our efforts to complete this project on time. We wish to express our deep sincere feelings of gratitude to our Institution, Presidency University, for providing us opportunity to do our education.

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STORES-SALES- PREDICITION

A Project Report

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ABSTRACT

Machine Learning is a category of algorithms that allows software applications to become more accurate in predicting outcomes without being explicitly programmed. The basic premise of machine learning is to build models and employ algorithms that can receive input data and use statistical analysis to predict an output while updating outputs as new data becomes available. These models can be applied in different areas and trained to match the expectations of management so that accurate steps can be taken to achieve the organization's target. In this paper, the case of Big Mart, a one-stop-shopping center, has been discussed to predict the sales of different types of items and for understanding the effects of different factors on the items' sales. Taking various aspects of a dataset collected for Big Mart, and the methodology followed for building a predictive model, results with high levels of accuracy are generated, and these observations can be employed to take decisions to improve sales. Nowadays shopping malls and Big Marts keep the track of their sales data of each and every individual item for predicting future demand of the customer and update the inventory management as well.

These data stores basically contain a large number of customer data and individual item attributes in a data warehouse. Further, anomalies and frequent patterns are detected by mining the data store from the data warehouse.

The resultant data can be used for predicting future sales volume with the help of different technique for predicating the sales of a company like Big Mart and found that the model produces better performance as compared to existing models .

Keywords: Machine Learning, Sales Forecasting, Random Forest, Regression

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IOT BASED HEALTH MONOTORING SYSTEM USING RASPBERRY PI

A Project Report

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DECLARATION

We the students of final year BCA in School of Information Science at Presidency University, Bengaluru, named **VIJAY KUMAR REDDY PUCHA, TEJAS V, TEJESWAR REDDY PUTTA, SASHI KIRAN BANDARU**, hereby declare that the project work titled "IOT BASED HEALTH MONITORING SYSTEM USING RASPBERRY PI" has been independently carried out by us and submitted in partial fulfillment for the award of the degree of Bachelor Of Computer Applications during the academic year of 2021-22. Further, the matter embodied in the project has not been submitted previously by anybody for the award of any Degree or Diploma to any other institution.

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ABSTRACT

In the recent years of health care development, we witness huge amounts of data flow to track few parameters of a person and alert the guardian in case of any emergency of the patient. This establishes a need for a single platform where users can monitor the data on a real time basis. This project is about health monitoring systems which allow patients to be monitored without having a need to visit the doctor which can be implemented with market sensors. This platform forms a great use when a patient is under frequent checkup or under home care for a long period of time. Health Monitoring system using IOT describes the collection and interoperation of patient data collected from the sensors from the hospitals through IOT Technology. The collected sensor data will support the doctor in the emergency situation for the betterment and improvement of Patient health. The hardware platform to implement the project consists of a sensor and Raspberry Pi 3 Model B equipped in a way to communicate with a doctor through the Internet and Smart Phone. Thus the patient's health parameters are watched lively and regular monitoring through the medical server to a doctor will help to make an effective diagnosis and almost accurate care can be given. The data collected through the IOT will help the patient to recover easily and also enhanced medical care can be given to the patients at a low cost.

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We sincerely thank our project guide, **Mr. Afroz Pasha,** Assistant Professor, Department of Computer Science Engineering for his guidance, help and motivation. Apart from the area of work, we learnt a lot from him, which we are sure will be useful in different stages of our life. We would like to express our gratitude to **Mrs. Bhavana A,** for their review and many helpful comments.

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Face Mask Detection using Machine Learning

A Project Report

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ABSTARCT

COVID-19 pandemic has rapidly affected our day to-day life disrupting the world trade and movements. Wearing a protective face mask has become a new normal. In the near future, many public service providers will ask the customers to wear masks correctly to avail of their services. Therefore, face mask detection has become a crucial task to help global society. This project presents a simplified approach to achieve this purpose using some basic Machine Learning packages like TensorFlow, Keras, OpenCV and Scikit-Learn. The proposed method detects the face from the image correctly and then identifies if it has a mask on it or not. As a surveillance task performer, it can also detect a face along with a mask in motion. The method attains accuracy up to 95.77% and 94.58% respectively on two different datasets. We explore optimized values of parameters using the Sequential Convolutional Neural Network model to detect the presence of masks correctly without causing over-fitting.

Facial recognition, as a biometric system, is a crucial tool for the identification procedures. When using facial recognition, an individual's identity is identified using their unique facial features. Biometric authentication system helps in identifying individuals using their physiological and behavioral features. Physiological biometrics utilize human features such as faces, irises, and fingerprints. In contrast, behavioral biometric rely on features that humans do, such as voice and handwritings. Facial recognition has been widely used for security and other law enforcement purposes. One large Face mask detection dataset was first used to train the model, while the original much smaller Face mask detector dataset was used to adapt and finetune this model that was previously generated. During the training and testing phases, network structures, and various parameters were adjusted to achieve the best accuracy results for the actual small dataset.

Keywords—Coronavirus, Covid-19, Machine Learning, Face Mask Detection, Convolutional Neural Network, TensorFlow

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We sincerely thank our project guide, **Assit.Prof, Kaipa Sandhya** CSE SoE for her guidance, help and motivation. Apart from the area of work, we learnt a lot from her, which we are sure will be useful in different stages of our life. We would like to express our gratitude to Faculty Coordinators and Faculty, for their review and many helpful comments.

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WOMEN SAFETY USING IOT

A Project Report

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This is to certify that the University Project II report **"Women Safety Using IOT"** being submitted by ***DivyaShree S, Varsha NC, Vinodhini S, bearing roll number 20191BCA0008, 20191BCA0020, 20191BCA0022*** in partial fulfillment of requirement for the award of degree of **Bachelor of Computer Applications** is a bonafide work carried out under my supervision.

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ABSTRACT

This Project presents a women safety detection system using GPS receiver and GSM modems. The system can be interconnected with the alarm system and alert the policeman and guardian . This detection and messaging system is composed of a GPS receiver, Microcontroller and a GSM Modem. GPS Receiver gets the location information from satellites in the form of latitude and longitude. The Microcontroller processes this information and this processed information is sent to the user using GSM modem. A GSM modem is interfaced to the MCU. The GSM modem sends an SMS to the predefined mobile number. When a woman is in danger or in need of self-defense then she can press the switch which is allotted to her. By pressing the switch, the entire system will be activated then immediately a SMS will be sent to concern person with location using GSM and GPS

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EMOTION DETECTION SOFTWARE

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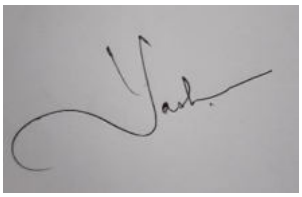

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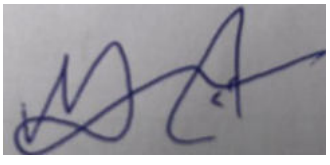

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ABSTRACT

Humans share a universal and fundamental set of emotions which are exhibited through consistent facial expressions. Emotions are a critical part of any conversation on the planet. They provide key insights that are hidden from simple text messaging applications. The most expressive way humans display emotions is through facial expressions. Here, we propose an efficient method for emotion recognition from facial expressions in static color images containing the frontal view of the human face. Our goal is categorizing the facial expression in the given image into six basic emotional states – Happy, Sad, Anger, Fear, Disgust and Surprise. First, face detection is performed by opening the front camera of the user or any other external camera to capture the face. Next, the extraction of facial features such as the eye and the mouth are performed by employing an iterative search algorithm. Finally, emotion recognition is performed by giving the extracted eye and mouth blocks as inputs the o a feed-forward neural network trained by back-propagation.

Keywords: Iterative, Neural, Emotional

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Smart Irrigation System

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ABSTRACT

Agriculture is the most important and backbone for all developing and developed countries. Smart Agriculture is an integrative way in which it targets on expanding the cultivation of crops and also developing the flexibility of farmers to climate collision. Automatic irrigation can be done through an IoT. It helps the farmer to supply the water without their presence in the farm field. In this survey is mainly focused on automatic irrigation concepts. Some of the techniques are reviewed in the following literature survey for the benefit of farmers and also to increase the rate of agriculture. By using those techniques, the water conservation can be increased and also the workload can be reduced for the farmer.

Keywords - Irrigation system, IoT, Smart systems, Smart agriculture, Decision Support Systems.

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