

THEFT DETECTION

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Abstract

A simple approach for obstacle detection and collision avoidance of an autonomous for using low-cost ultrasonic sensors and simple data fusion is presented here. The approach has been implemented and tested in a self-developed and its evaluation shows the general realizability as well as the drawbacks of this approach. The presented approach is intended to be used as part of the AQopterI8 project at the department of Aerospace Information Technology (University of Würzburg), which aims to develop an autonomous for indoor application. One major issue on implementation was the fact that the sensors disturb each other. Though more sensors allow the raising of the sample time and the resolution of objects detection, more sensors also mean more noise and errors. Therefore, a trade of between sample time and accuracy had to be made. The best results were found by using 3 activation groups and activate those four sensors with 90° shift angle between each other at the same time. This leads to a group sample time of 30ms and a sensor sample time of 90ms. Another problem is the fact, that the rotations of the manipulate the ultrasonic measurements. Therefore, measurements from the IMU like the angular rate from the gyroscope are used to detect rotations and dismiss incorrect measurements of the ultrasonic sensors ,In the obstacle detection module, redundant ultrasonic sensors are used to increase detection resolution and sensor data reliability. Since ultrasonic sensors have a width dihedral detection angle, the resolution of detected obstacles is very low. The implemented approach uses always two ultrasonic sensors for one half of the same angle. Hence, though the double amount of sensors is needed, the redundancy and resolution is also doubled. Figure 3 shows the implemented constellation using 12 ultrasonic sensors for a 360-degree circle. For example, sensor S0 and sensor S1 share one half of their total angle.

1. INTRODUCTION

In today's world, the crime of theft is increasing day by day in our society.

Either an office, home or any building, none of them are secure. Safety and security are the priority to all human

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the vehicle that are begin stolen are not recovered early, they are mostly sold or some cases it is burned if the resale value is considered to be too low. In one cse a vehicle is stolen, it becomes hard to situate it and cut through it, which considerably lessens the chances of recouping it. In this project, we propose the design and implementation of a vehicle tracking anti-theft system that will protect, secure vehicles.

The main problem in the existing system is that the gps tracker track and monitors the vehicle 24/7 as a result of which it consumes a lot of energy.

An embedded system is a combination of software and hardware to perform a dedicated task. Some of the main devices used in embedded products are Microprocessors and Microcontrollers.

Microprocessors are commonly referred to as general purpose processors as they simply accept the inputs, process it and give the output. In contrast, a microcontroller not only accepts the data as inputs but also manipulates it, interfaces the data with various devices, controls the data and thus finally gives the result.

The project “Arduino UNO based theft detection and E-mail alerts with blynk notifications” using Arduino microcontroller is an exclusive project which is used to detect the object theft and

beings. Especially in today’s scenario, where crimes are increasing day by day, we need to be more secure. The aim of the project is to designing an object theft detection and alerting system using Arduino, IR sensor and Esp8266 Wi-Fi module. In this project we are using IR sensor to detect the object. Esp8266 Wi-Fi module is used to send the mail and blynk app notifications to the user. The main controlling device of the project is Arduino uno. IR sensor, esp8266 Wi-Fi module is interfaced to the Arduino uno. We are placing the object in front of the IR sensor. Arduino continuously read the data from IR sensor. When the theft was occurred, it will detect by the sensor and process this data to the Arduino. Then Arduino send the blynk notifications to the user mobile and also send the mail alerts to the user through Wi-Fi and it send the location to blynk app with the help of gps module. The main controlling device of the whole project is Arduino which is written in embedded C language.

2. RELATED WORK

In this project, we propose an electricity theft detection system and monitoring system by using GSM and arduino microcontroller to detect the act which is made by the thief. In India, 1akh cases of vehicle theft on average are reported each year, and the number is still increasing. If

send the notifications to the user using an IOT...

3. IMPLEMENTATION

The uses of embedded systems are virtually limitless, because every day new products are introduced to the market that utilizes embedded computers in novel ways. In recent years, hardware such as microprocessors, microcontrollers, and FPGA chips have become much cheaper. So, when implementing a new form of control, it's wiser to just buy the generic chip and write your own custom software for it. Producing a custom-made chip to handle a particular task or set of tasks costs far more time and money. Many embedded computers even come with extensive libraries, so that "writing your own software" becomes a very trivial task indeed. From an implementation viewpoint, there is a major difference between a computer and an embedded system. Embedded systems are often required to provide Real-Time response. The main elements that make embedded systems unique are its reliability and ease in debugging.

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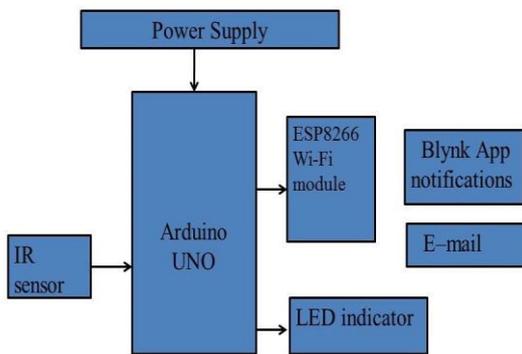
send the notifications and the live location to the user using an IOT.

The thesis explains the implementation of "Arduino UNO based theft detection and E-mail alerts with blynk notifications" using Arduino microcontroller.

The security system described in this project is capable of detecting intruders. The system informs it the authorized owner of an unauthorized intrusion via SMS no matter where the person is, except if the person is in the region where there is no network coverage at the time of intrusion. The commonly available systems today are one where the intrusion is detected via alarms making out sounds. The system is very beneficial for people who want to safe guard their properties and restrict access. This system is very affordable and easily operated, so that anybody whether rich or comfortable, young or old can make use of this system. Thus, we have designed a home security alarm system using Arduino and PIR motion sensor, which is handy, portable, cost-effective and highly effective as well. Such alarm systems are hugely in demand for security purposes, and thus the given system can be proved useful and effective.

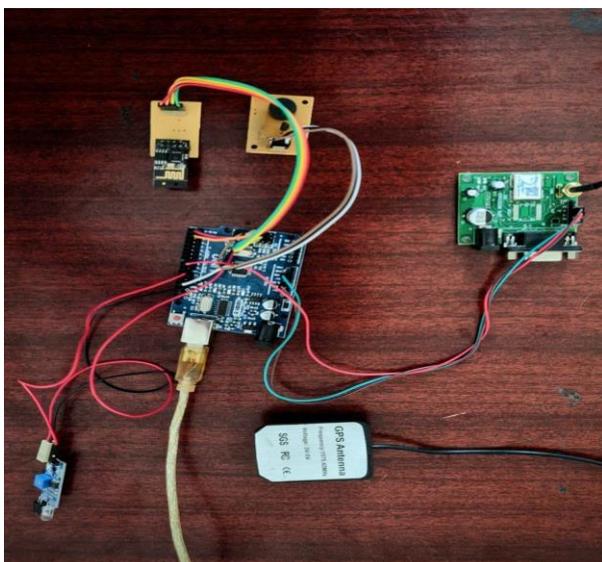
Conceptual Design

Arduino UNO based theft detection and E-mail alerts with blynk notifications



4. EXPERIMENTAL RESULTS

With the growth in wireless technology, the danger of attacks is also increase. For making wireless technology secure cryptographic methods can be used. But cryptographic methods can defense outside attacks. Intrusion detection system monitors traffic of the sensor nodes and detect abnormal behavior of the nodes. The major approaches that an Intrusion Detection System can used to specify attacks



The project “Arduino UNO based theft detection and E-mail alerts with blynk notifications” was designed a theft notification system by using IOT technology and IR sensor and arduino UNO. The above schematic diagram explains the interfacing section of each component with microcontroller. Connections of this Arduino UNO based theft detection and E-mail alerts with blynk notifications are quite simple, here an Rx and Tx pin of WI-FI module is directly connected at 8thand 9 pin of Arduino respectively. And ADXL345 is connected to arduino pin number a0 respectively

5. CONCLUSION

Integrating features of all the hardware components used have been developed in it. Presence of every module has been reasoned out and placed carefully, thus contributing to the best working of the unit. Secondly, using highly advanced ICs with the help of growing technology, the project has been successfully implemented. Thus, the project has been successfully designed and tested.

- We can add GSM module to send the alert message in the form of SMS.
- GPS module sends the location of the property through blynk app

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