International Journal on Applications in Basic and Applied Sciences
Volume 8 : Issue 1 : August 2022 , pp 23 – 27 www.aetsjournal.com ISSN (Online) : 2455 - 1007

VEHICLE THEFT IDENTIFICATION

SANTHOSH . E , A. SRINIVASAN

***Abstract*—** The main aim of this project is to design "Anti-theft" alerting system for vehicles (two wheeler). In recent years vehicle theft has become a major issue which should be traced and detected. The safety and security of the vehicle is essential. Even there are many existing mechanisms they have some limitations and high cost. So, an efficient security mechanism is needed. This project detects vehicle theft. Arduino is the main component which is used to interface dc motor and GPS, GSM. The place of the vehicle identified using Global positioning system (GPS) and Global system mobile communication (GSM) with the help of Wi-Fi module ESP 8266. GPS is a space-based navigation system used to track the vehicle and it gives the location of the robbed device in all weather conditions. It gives the latitude and longitude of the device using GPS antenna. GSM is a specialized type of modem and operates just like a mobile phone. It is used to provide information to the owner and alert him with a message having latitude and longitude of the vehicle. This total system is operated with a switch which is made on when we park the vehicles out. Now if the vehicle theft happened, dc motor starts and the above procedure continues and the information is posted using internet of things. This vehicle theft prevention and tracking system is used in client's vehicle as a theft prevention and rescue device.

***Keywords*—** Anti-theft, GPS, GSM, Vechicle theft prevention.

I. INTRODUCTION

Vehicle theft detection using GPS has gained attention. The automatic vehicle theft detection are introduced. The proposed design in the system, that theft detection send less time and sends an alert message along with the basic information in a short time using IOT and covering geographical coordinates using GPS which will help in saving the vehicle. And it also provides better security against the theft of the vehicle. When the vehicle move without key, an alert is sent to owner. If it is an act of stealing, the owner will be aware of the steal and able to find the location of the vehicle. This application provides the best solution to lack of theft.

Santhosh E, Student, B.Sc Computer Science, Department of Computer Science, Rathinam College of Arts and Science, Coimbatore, Tamil Nadu, India – 641021, (e-mail: santhoshsandy2212@gmail.com).

Mr. A. Srinivasan, Assistant Professor, Department of Computer Science, Rathinam College of Arts and Science, Coimbatore, Tamil Nadu, India – 641021, (e-mail: srinivasanar91@gmail.com).

II. SYSTEM STUDY

1) Existing System:

Mostly used systems are beepers, alarms, and biometrics. But, all these commercially available products are very high-priced. These systems however bear some limitations such as high cost, high false-alarm rate, and easy to be disabled. Biometric has its own is advantages such as the systems are not 100% accurate, they require integration and or additional hardware and cannot be reset once compromised. In order to solve here problem recent advancements in computer hardware and software have enabled automobile use try to develop affordable automated biometrics-based identification and verification systems.

2) Proposed System:

The location of the vehicle can be identified accurately. The information about being directly send to the cloud allocate space without any obstacles. Stolen vehicles can be identified.

III. SYSTEM DEVELOPMENT

A. Module Description:

Well structured designs improve the maintainability of a system. A structured system is one that is developed from the top down and modular, that is, broken down into manageable components. In this project we modularized the system so that they have minimal effect on each other. This application is designed into five independent modules which take care of different tasks efficiently.

1. Arduino UNO.
2. Wi-Fi Module - ESP 8266.
3. Switch.
4. GPS (Global Positioning System).
5. LCD.
6. Vibibration Sensor.

1) Arduino UNO:

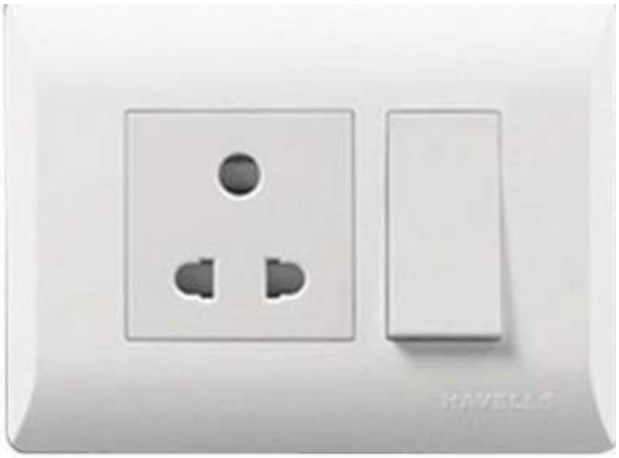
The Arduino Uno R3 is a microcontroller board based on the ATmega328. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. Arduino when connected to a computer with a USB cable or power it with a AC-to-DC adapter or battery gets started.

2) Wi-Fi Module - ESP 8266:

The ESP8266 Wi-Fi Module is a self-contained SOC that can give any microcontroller access to your Wi-Fi network. Each ESP8266 module comes pre-programmed with an AT command set firmware, that is, it can simply have hooked up to Arduino device and get Wi-Fi ability. The ESP8266 module is an extremely cost-effective board with a huge, and ever growing, community.

3) Switch:

This is used to activate the entire theft detection system. As long as switch is in ON position alert and location will be sent to owner as soon as vehicle starts. If the switch is OFF, no alert will be sent and location details are also not shared. In this way, using switch we can control system activation and deactivation.



4) GPS (Global Positioning System):

Global Positioning System (GPS) is a satellite-based navigation system. We use NEO-6M GPS module as it is compatible with a variety of GPS receivers. It has a built-in ceramic antenna. Integrates with a 3V button battery. Normally GPS works in any weather conditions at anywhere in the world. A GPS receiver must be locked on to signal of at least 3 satellites to estimate 2D position (Latitude and longitude).

5) LCD:

The liquid-crystal display (LCD) is that uses the properties of both liquid and crystals and there is need of light to read the display. It is used to display the operating instructions and status of the output. It is has better legibility, more information displaying capability and a wider temperature range.

6) VIBIBRATION SENSOR:

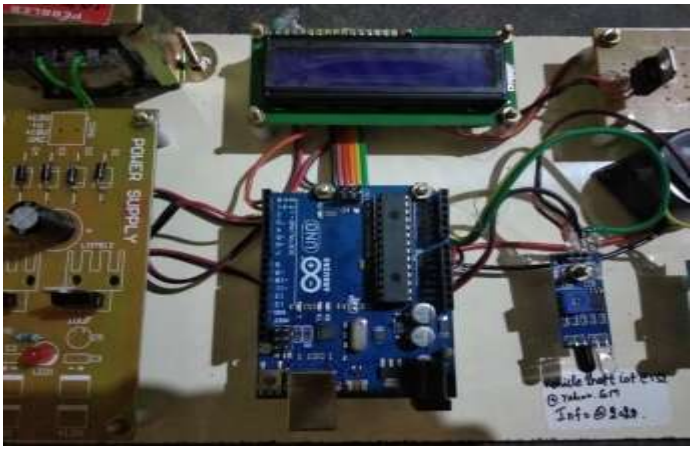
This circuit is using for detecting the vibration using electric plate. electric plate converts the mechanical vibration to electrical signal. the converted electrical signal is in the range of voltage signal. at the time of vibration the output will be in zero state. so the LED already gets the positive 5 volt power supply in anode side. now LED receive potential and it will be in a forward bias so the will glow. the output pin is monitoring by using any microcontroller or process.

IV. SYSTEM DESIGN

1)Input Design:

Input design is one of the most expensive phases of the operation of computerized system and is often the major problem of a system. a large number of problems with the system can usually be traces back to fault input design and methods. needless to say, therefore that the input data is the life block of a system and has to be analyzed and designed with the most consideration. The decision made during the input design are: provide cost effective method of input, achieve the highest possible level of accuracy, ensure that input is understood by the user.

System analysts decide the following input design details like, what data item to input, what medium to use, how the data should be arranged or coded data items and transaction needing validations to detect errors and at last the dialogue to guide users in providing input. input data of a system may not be necessarily a raw data captured in the system form scratch. these can also be the output of anther system or sub-system.the design of input covers all phases of input from the certain of initial data to actual entering the data to the system for processing.



2)Output Design:

Output design generally refers to the result and information that are generated by the system. for many end-users, output is the main reason for developing the system and the basis on which they evaluate the usefulness of the application.

The objective of a system finds its shape in terms of output. the analysis of the objective of a system leads to determination of output. output of a system can take various forms. The most common are reports, screens display printed form, graphical drawing etc. the outputs vary in terms

Of their contents, frequency, timing and format. The users of the output, its purpose sequence of details to be printed are all considered. When

designing output, the system analyst must accomplish things like, to determine what information to be present, to decide whether to display or print the information select the output medium to distribute the output to intended recipients.

Internal output are those, whose destination is within the organization. it is to be carefully designed, as they are the user's main interface with the system .interactive are those, which the user uses in communication directly with the computer.

3)Database Design:

The database design involves creation of tables that are represented in physical database as stored files .the user have their own existence. Each table constitute of rows and columns where each row can be viewed as record that consists of related information and column can be viewed as fields of data of same type. the table is designed with some position can have a null value. The database and with normalized format. The movement and location of the vehicle can be stored in database.

V. TESTING METHODOLOGIES

The first step in developing anything is to state the requirements. This applies just as much to leading edge research as to simple programs and to personal programs, as well as to large team efforts. Being vague about your objective only postpones decisions to a later stage where changes are much more costly. The problem statement should state what is to be done and not how it is to be done. It should be a statement of needs, not a proposal for a solution. A user manual for the desired system is a good problem statement. The requestor should indicate which features are mandatory and which are optional, to avoid overly constraining design decisions. The requestor should avoid describing system internals, as this restricts implementation flexibility. Performance specifications and protocols for interaction with external systems are legitimate requirements. Software engineering standards, such as modular construction, design for test ability, and provision for future extensions, are also proper. Many problems statements, from individuals, companies, and government agencies, mixture requirements with design decisions. There may sometimes be a compelling reason to require a particular computer or language; there is rarely justification to specify the use of a particular algorithm. The analyst must separate the true requirements from design and implementation decisions disguised as requirements. The analyst should challenge such pseudo requirements, as they restrict flexibility. There may be politics or organizational reasons for the pseurequirements, but at least the analyst should recognize that these externally imposed design decisions are not essential features of the problem domain. A problem statement may have more or less detail. A requirement for a conventional product, such as a payroll program or a billing system, may have considerable detail. A requirement for a research effort in a new area may lack many details, but presumably the research has some objective, which should be clearly stated.

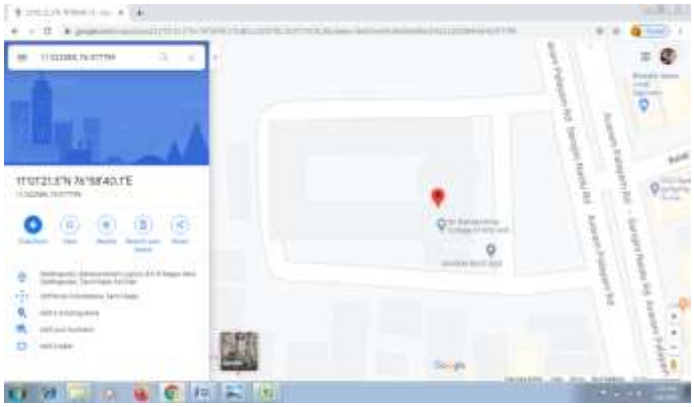
Most problem statements are ambiguous, incomplete, or even inconsistent. Some requirements are just plain wrong. Some requirements, although precisely stated, have unpleasant consequences on the system behavior or impose unreasonable implementation costs. Some requirements seem reasonable at first but do not work out as well as the request or thought. The problem statement is just a starting point for understanding the problem, not an immutable document. The purpose of the subsequent analysis is to fully understand the problem and its implications. There is no reasons to expect that a problem statement prepared without a fully analysis will be correct. The analyst must work with the requestor to refine the requirements so they represent the requestor's true intent. This involves challenging the requirements and probing for missing information. The psychological, organizational, and political considerations of doing this are beyond the scope of this book, except for the following piece of advice: If you do exactly what the customer asked for, but the result does not

meet the customer's real needs, you will probably be blamed anyway.

VI. EXPERIMENTAL RESULTS

1)Sample Input:

2)Sample Output:



VII. CONCLUSION

The project "vehicle theft identification" has been successfully designed and tested. Integrating features of all the hardware components used have developed it .presence of every module has been reasoned out and placed carefully thus contributing to the best working of the unit. The system provides the design which has the advantages of low cost, protability and small size .it consist of vibration sensor, GPS and IOT ,interfacing which reduces the theft. it also overcome a lot of problem of automated system for theft location detection. Consequently ,it reduce the time for searching the location as soon as possible. this system will play an important role in day to day life in future.

REFERENCES

[1] The 8051 Micro controller and embedded system, Muhammad Ali Mazda Janice Gillespie Mazda
[2] The 8051 Micro Controller Architecture, Programming &Applications Kenneth J. Ayala
[3] Thingspeak(www.Thingspeak.co.in)
[4] Manjunath Kmart K, et al," automatic theft detection and alerting system based on IOT", International journal of innovative Research in computer and communication Engineering, vol. 5, Issues' 5,May 2017.
[5] CoiNet Technology solution LLP,LPC2148 ARTIST Instruction manual.