

International Journal of Computer Science and Mobile Computing



A Monthly Journal of Computer Science and Information Technology

ISSN 2320-088X

IMPACT FACTOR: 7.056

IJCSMC, Vol. 9, Issue. 5, May 2020, pg.158 – 162

INTELLIGENT AUTOMOBILE MONITORING AND CONTROLLING USING IOT

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Abstract— *Irrigation It is observed that most of the accidents occur due to the drivers negligence of traffic and safety rules. Speed restriction may be imposed on drivers from time to time; therefore a system monitoring the speed and other desired automobile parameters can be installed in the automobile to warn the driver. Automation is used to turn the system from manual to automatic in electronics and thus helps to control the parameters as per the inputs. The automation in this system used to monitor vehicles automatically using IoT. In this project the device is used to collect the details during the accidents and it is uploaded to the cloud and later transmitted to the police station. In this project the sensors like accelerometer, contact switch, alcohol sensor, potentiometer are used to identify the different status of the vehicle. It is uploaded on the web server and the insurance agencies can view all these details for their claim.*

Keywords— *Include Soil moisture, Humidity sensor, temperature monitoring, IOT*

I. INTRODUCTION

The developed system where vehicle communication is possible by developing the sensors on vehicles for smart interaction can be a life changer. The automobile field is the main application domain where vehicles can be made intelligent by using IoT. Our main focus in this project is to collect the details during the accidents and it is transmitted to the police station. The data uploaded in the server can be used by the insurance companies to make their claim. The module will consist of the following sub modules which can be microcontroller and IoT based systems, namely: GPRS, GSM, Alcohol sensor, Potentiometer, Accelerometer, Dc motor, ESP8266 (IOT). This auto transmission technology system has already been deployed in genuine and some sedan, inexpensive cars, and using this information to make claims will benefit the insurance companies and the data can be used for further studies as well. This system makes the genuine cars smart with IoT technology which gives updates to the owner to maintain the car. The data recorded by the system developed by using sensors connected with the CAN network in the car can be used to monitor the car through a web page. If the driver is drunk the alcohol detection sensor will record the data and this can be used by the police. The proximity sensor is used to detect black spots while parking the car. The modules such as GPRS can send the location of the car, GSM module can be used for the transmission of recorded data by the sensors. Alcohol sensor, Potentiometer, Accelerometer can be used to monitor the speed of the vehicle, and the IoT module used is ESP8266 (IOT). We can monitor this system by web.

II. EXISTING SYSTEM

In the existing system even though the system is smart, it doesn't take actions. For instance in the existing system the alcohol sensor is unavailable. Also, the data isn't utilized by the police to ensure the safety of the passengers. The alcohol sensors have to be customized. In this project, the alcohol sensor detects the alcohol concentration near the driver's seat and if it is above a certain level, a signal is sent for the relay to turn off the engine of the car. Even after the relay triggers to turn the engine off and the driver still wants to drive, the police get a notification about it. The police can take legal action and also it will be useful for the insurance companies if at all the driver meets with an accident after drunken driving and tries to make an insurance claim.

Disadvantages Of Existing System

- Reporting and updation of incidents cannot take place unanimously.
- However the seriousness of the event occurred, the priority of the event cannot be manually influenced.
- The system can take a bias from the event first occurring, and continue to favour that side over consequent reports.
- The reports submitted may not be of the optimal format from case to case.
- Many other integrity constraints can arise over time.

III. PROPOSED SYSTEM

To overcome the drawbacks of existing systems like not notifying the police about drunken driving, over speeding etc and to improve the conventional idea of a smart car using less capital this idea this idea has been proposed. The data uploaded to the cloud can be utilized by the insurance company and the police to cross verify insurance claims and to take legal actions respectively.

Advantages of proposed systems

- The proposed system will be very helpful for the insurance companies.
- In case anyone tries to make a false claim, the insurer can cross verify.
- The data recorded can be used by the police to arrest law breakers for drunken driving.
- Data collected can be utilized by data scientists for forecasting and drawing new trends.
- The streets will be safer without drunk drivers.

IV. HARDWARE REQUIREMENTS

1. GPRS
2. GSM
3. Alcohol sensor
4. Potentiometer
5. Accelerometer
6. DC motor
7. ESP8266(IOT)

V. WORKING OF PROPOSED SYSTEMS

a) PIR Sensor

The PIR (Passive Infra-Red) Sensor is a pyroelectric device that detects motion by measuring changes in the infrared levels emitted by surrounding objects.

b) Humidity Sensor

The Smartec humidity sensor is a two terminal capacitor, which increases in value as water molecules are absorbed into its active polymer dielectric. The capacitor plates consist of a base plate and a water permeable platinum top plate.

c) Soil Moisture

This sensor can be used to test the moisture of soil, when the soil is having water shortage, the module output is at high level, and else the output is at low level.

d) Temperature Sensor

The LM35 series are precision integrated-circuit temperature devices with an output voltage linearly-proportional to the Centigrade temperature. The LM35 device is rated to operate over a -55°C to 150°C temperature range.

e) Arduino UNO

Arduino Uno is a microcontroller board based on the ATmega328P. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter. Arduino Uno has a number of facilities for communicating with a computer, another Arduino board, or other microcontrollers

f) Relay Board

A relay is an electromechanical switch which is activated by an electric current. A four relay board arrangement contains driver circuit, power supply circuit and isolation circuit. A relay is assembled with that circuit. The driver circuit contains transistors for switching operations. The transistor is use for switching the relay.

BLOCK DIAGRAM:

IN VEHICLE:

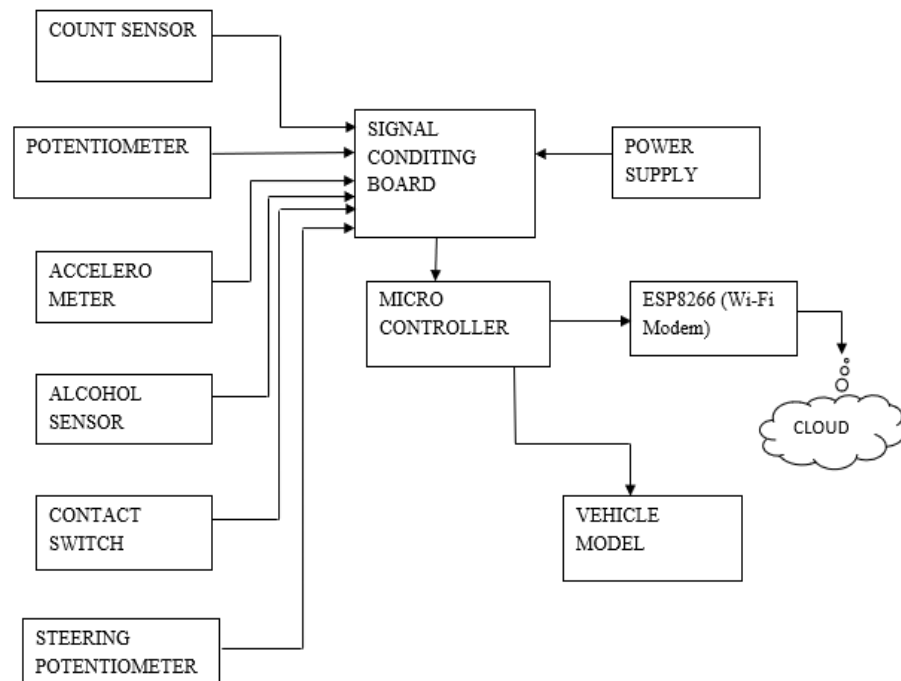


Fig. 1 System Architecture

Figure 1 represents proposed system architecture which is explained below step by step.

- ▶ The sensors are connected with the microcontroller of each of the vehicles.
- ▶ The outputs of the sensors are very low and hence they are amplified with the help of signal conditioning board.
- ▶ This device will act like a black box, which is safe during the accidents also.
- ▶ The ESP8266 modem is used for wireless communication to the web server.
- ▶ The insurance agency can easily identify the history and also the correct reason for the accident can be identified.
- ▶ This will avoid the malpractice in insurance claims.
- ▶ HTML & Python (For web server)
- ▶ Embedded C (Programming language in Arduino)

g) Pump Motor

A pump motor is a DC motor device that moves fluids. A DC motor converts direct current electrical power into mechanical power. DC or direct current motor works on the principal, when a current carrying conductor is placed in a magnetic field, it experiences a torque and has a tendency to move. This is known as motoring action. Therefore this project deals with the automatic maintenance of agricultural fields with proper irrigation. The system consists of Humidity sensor, Soil moisture sensor, Temperature sensor, relays, signal conditioner, micro controller, IOT modem and a pump motor.

The controller receives the signal from the various sensors and controls the irrigation accordingly. Through the relay, the pump motor is ON and OFF.

ALGORITHM

1. Start
2. Record information regarding the accident on the spot, with the most possible details
 - a) This information should be provided by an unbiased, or a partiality minded person, to arrive at the most fair and accurate prediction
3. Based on clarity of the information, split the acquired data on the basis of the two parties
 - a) This data must be evaluated at the earliest by the nearest traffic police or the respected superintendent in the jurisdiction limits.
 - b) Based on the conclusion arrived at by the reports, further investigation is to be carried out if requested by the accused, to either acquit him or take it further
4. This shall simplify the entire process of reporting a traffic rule violation crime and help the department achieve 100% upkeep of rules & regulations, and necessary records as well
5. Pass on the reports and concluded verdict on the case, with all of the decisions on the case, to the higher officials
6. Stop.



Fig.2 Working System

VI. CONCLUSIONS

This project comes up with a solution to reduce drunk driving in the streets by making the vehicle smart using modules like: GPRS, GSM, Alcohol sensor, Potentiometer, Accelerometer, Dc motor, ESP8266(IOT). The data that is stored in the cloud can be very useful for the insurance companies who lose a lot of money every year falling prey to false claims. If at all a person wants to insure money, the insurer can cross verify data and come to a conclusion whether the claim is true or not. The alcohol sensor embedded in the car is a lifesaver. This sensor is connected to a relay which can control the engine activity. The range of the alcohol sensor is limited to the driver's seat. The alcohol sensor with help of the GSM module will notify the police in the area after a warning has been given to the driver if he/she still insists on driving. This will help the police in the area to make the streets safe.

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