

MICROCONTROLLER BASED ACCIDENT PREVENTION SYSTEM WITH IOT

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Abstract : *The main aim of this project is to develop a system that can detect the alcohol content in the air exhaled by the driver and automatically turn off the car if alcohol percentage exceeds the limit. In this project we are using 8051 family (89s52) microcontroller. the alcohol sensor used in this project is mq-3 which to detect the present of alcohol content in human breath. Alcohol sensor gives out analog data that can't be analyzed by 8051 microcontrollers. The data received from alcohol sensor is converted into digital form with the help of digital converter (analog to digital converter). after that the data is stored in microcontroller and then compared to the threshold values. if the value is beyond its set limits, then with the help of program controller takes appropriate action which controls the ignition system. here we used electro mechanical relays to control the ignition system. In this project by controlling the ignition system, we can prevent accidents that occur due to drink and drive.*

Keywords : *IOT internet of things, ignition, sensors, microcontroller.*

I. INTRODUCTION

The factor of vehicle compactness on the road increased dramatically because of the population in India has been increasing rapidly years by years. Some of the cases of these road accidents may happen when there are drunken driver who driving in dangerous condition. At present the death cases due to the drunken driver cause of themselves have increased radically. The purpose of this project is to develop vehicle accident prevention by using method of alcohol detector. This project is developed by integrated the alcohol sensor with the microcontroller. The alcohol sensor used in this project is MQ-3 which to detect the present of alcohol content in human breath. The vehicle accident prevention system can be one of the solutions to avoid drunken driver to drive as it could detected the BAC through human breaths using alcohol sensor.

II. LITERATURE REVIEW

The road accident is one of the major problems all over the world. The recent report says that the annual average road accident is estimated to be about 7, 00,000 of which 10 percentage occur in India which has overtaken China.[2] The annual statistics revealed by the World Health Organization (WHO) in its Global status report on road safety says that around 80,00people are killed on Indian roads due to rash driving and less usage of helmets. Also, most of the countries are forcing the motor riders to wear the helmet and not to use the vehicles when the person is not riding without helmet.[6]

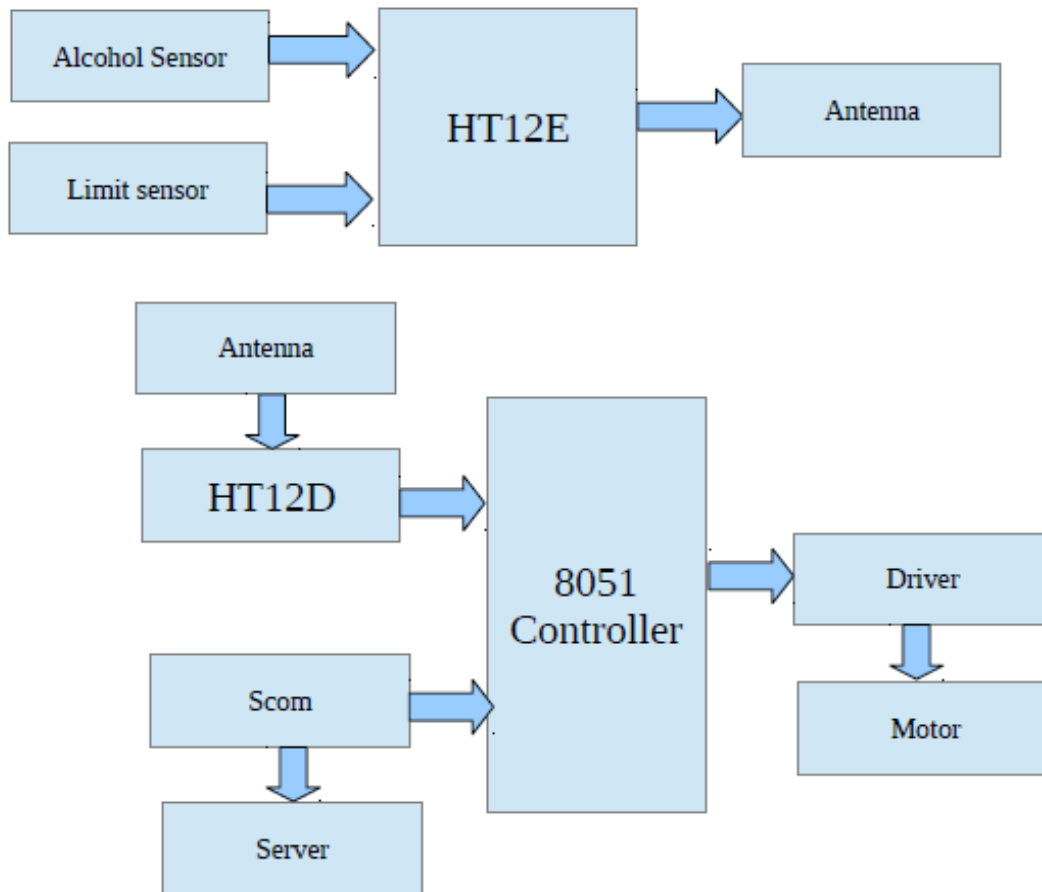
III. IMPLEMENTATION

The project is to design intelligent helmet system which ensures wearing of helmet and ensure the rider safety while riding the bike and alerting the Hospital and Ambulance, if in case the rider has met with an accident.[7]

1. To design the circuit that can improve the safety of motorcyclists.
2. To develop an Smart safety helmet for complete rider.
- 3.To study and understand the concept of RF Transmitter and RF Receiver circuit in implementing the project.[11]

IV. PROPOSED SYSTEM

In our proposed system our efforts to detect drunk-ness of driver and if they have drunked then prevent them from driving and notifying this detection of alcoholic driver to near police station who are suffering for identifying drunken driver and give punishment. [12]Along with his scheme we are also going to monitor behavior of vehicle in both inside and outside of vehicle. Along provide help to driver on website to ambulance, police station and relative of driver also.[1]



Fig, Proposed Architecture diagram if the system

The alcohol sensor will detect the alcohol content from human (driver) breath and send its value to microcontroller. Alcohol sensor (MQ3) is suitable for detecting alcohol concentration just like your common breathalyzer. It has a high sensitivity to small value of BAC and fast response time, provides an analog resistive output based on alcohol,[4] it has sno2 gas sensitive material to sense alcohol. GPS is a global positioning system which is used to get the location of particular object in latitude and longitude. We are going to use GPS system to send position information to police and relative of driver when alcohol detected as well as accident Happen then location, vehicle no. is send to police station, relative and ambulance for providing treatment immediately or as early as possible.[8] And also police can track driver if alcohol detected, to give punishment. The global positioning system (GPS) is a satellite-based navigation system consists of a network of 24 satellites located into orbit. GPS works in any weather circumstances at anywhere in the world. Normally no subscription fees or system charges to uses GPS. A GPS receiver must be locked on to the signal of at least three satellites to estimates 2D position (latitude, longitude and altitude). [6]Once the vehicle position has been calculated, the GPS unit can determine other information like, speed, distance to

destination, time and other. GPS receiver is used for this research work to detect the vehicle location and provide information to responsible person through IOT system.[9]

V. Flow Chart

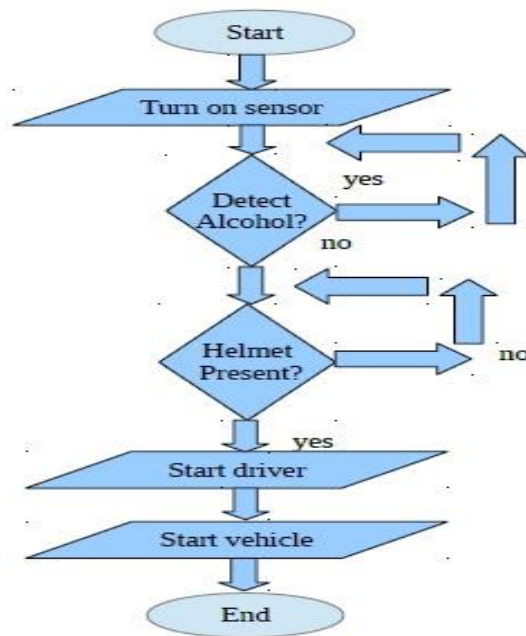


Fig. Flow chart

VI. RESULT

The result of the system is verified under 2 different conditions:

- i) Detect alcohol and immediately stop bike, This sensor we have implemented wirelessly.
- ii) We have detected accident using limit switch and send this information to respective person.

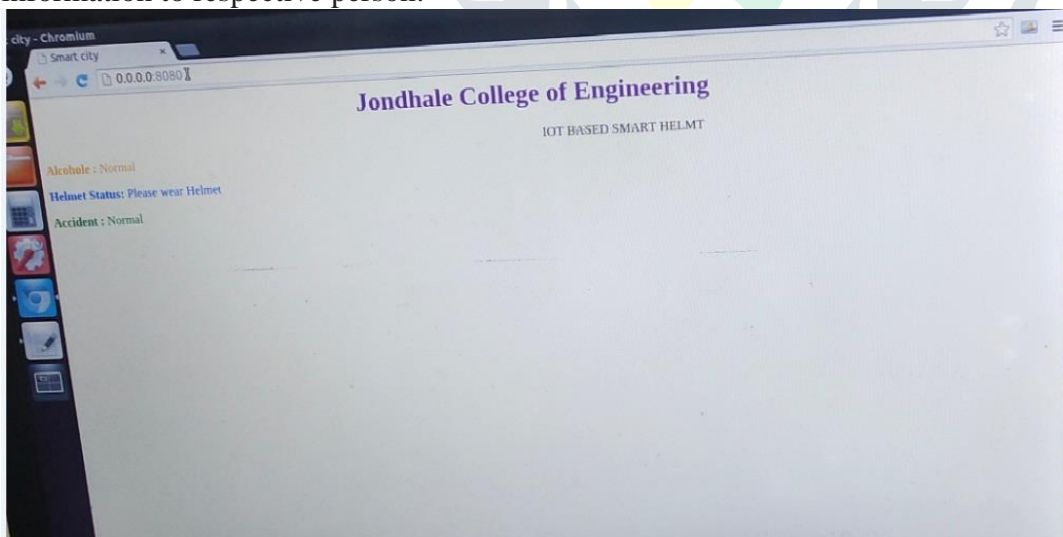


Fig. shows the information of bike

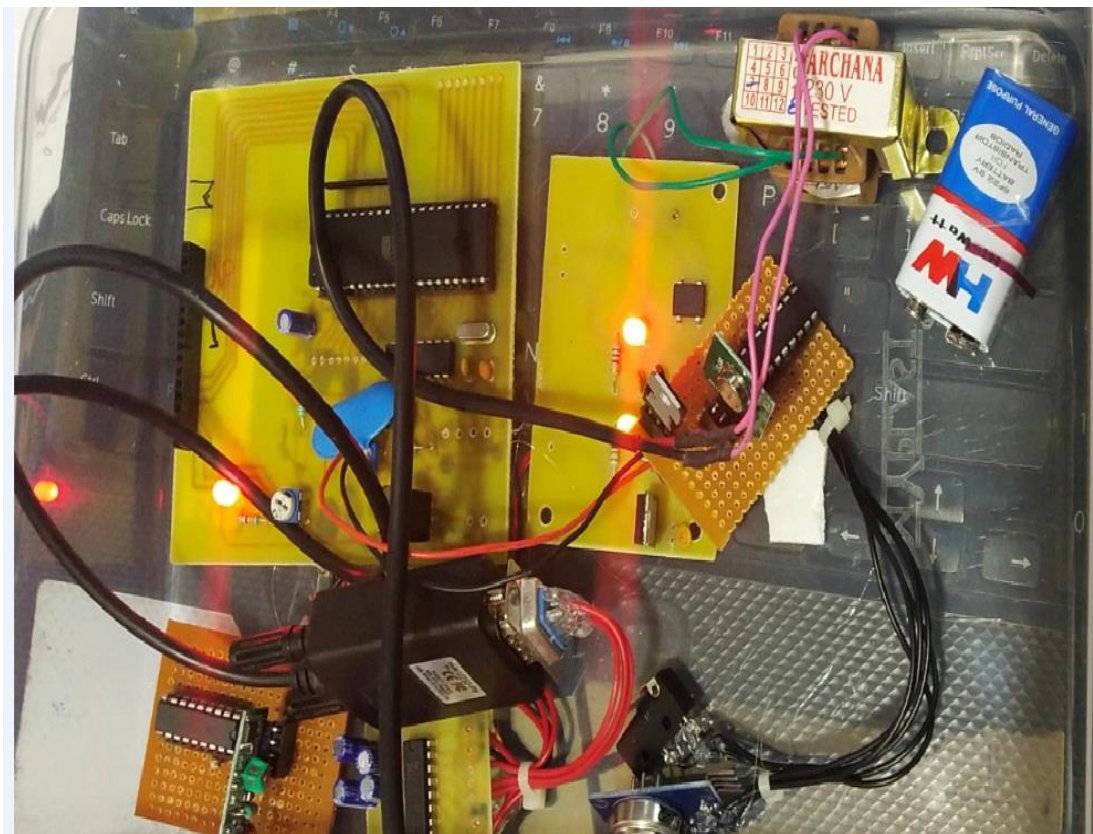


Fig. Hardware

VII. CONCLUSION

The outcomes of the project have showed that the bike ignition will start if the helmet is worn. So, it will automatically decrease the effect form accident and it can avoid bike from being stolen. Tests found that this system is highly effective and it's efficient in testing the alcohol percentage of the Human beings and if it crossed the threshold value the dc motor will stop working. By fitting this alcohol sensor into the bike. We can save the life of the driver and also the remaining passenger.

VIII. FUTURE SCOPE

1. This type of system is not available in market so it can be implement on vehicle.
2. This system reduces the work load of police force.
3. We can implement various bioelectric sensors on the helmet to measure various activity.
4. We can use small camera for the recording the drivers activity. It can be used for passing message from the one vehicle to another vehicle by using wireless transmitter.
5. We have used solar panel for helmet power supply by using same power supply we can charge our mobile.

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