VVITRONICS

VVIT
VASIREDDY VENKATADRI
INSTITUTE OF TECHNOLOGY

ELECTRONICS & COMMUNICATION ENGINEERING

January-June 2019

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ECE DEPARTMENT VISION& MISSION:

VISION:

To produce globally competitive engineering graduates through high quality education, to instil high standards of ethics and professionalism,andto bring out quality researchin the frontier

Areas of Electronics & Communication Engineering.

MISSION:

To impart high quality technical education to all students:
- **To become active life-long learners with the necessary skills, competencies, and ethical values.**

- **To develop human resources with skills of creativity and research.**
- **To inculcate value-based, socially committed professionalism to the cause of overall development of students and society.**

NEWS&EVENTS

- A guest lecture on 'Finite Elements of Methods'
- A guest lecture on Tribology is delivered by Dr.R.Narasimhara, NIT Waranagal
- A session on High Performance Computing is conducted in VVIT, Nambur by Dr. V. C. V. Rao, CDAC, Associate Director.
- VVIT as part of Indo-Nardic collaboration organized a Hack-a-Thon on Modern Techniques in Urban Farming
- Guest Lecture on OOMG in Civil Engineering.

Faculty Achievements

1) Mr. V.T.Venkateswarlu (Associate Professor, ECE) published a Journal paper "Delay sensitive data routing optimization using rendezvous agents in wireless sensor networks with mobile sink" in journal of International Journal of Computers and Applications ISSN: 1206-212X (Print) 1925-7074 (Online) DOI: 10.1080/1206212X.2019.1576326.

2) Mr. K.Vasu Babu (Assistant Professor, ECE) published a Journal paper "Design of inverted L-shape & ohm symbol inserted MIMO Antenna to reduce the Mutual Coupling" in International Journal of Electronics Communication, ELSIEVER, ACCEPTED, 2019.

3) Mr. K.Vasu Babu (Assistant Professor, ECE) published a Journal paper "Analysis of Multi-band Circle MIMO Design for C-band Applications" in International Journal of Progress In Electromagnetic Research, ACCEPTED, 2019

4) Mr. K.Vasu Babu (Assistant Professor, ECE) published a Journal paper "Design of Wang shape neutralization line antenna to reduce the mutual coupling in MIMO antennas" in International Journal of Analog Integrated Circuit & Signal Processing SPRINGER, Jan 2019, ISSN :0925-1030, DOI:10.1007/s10470-019-01397-y

5) Mr. K.Vasu Babu (Assistant Professor, ECE) "Design of Half-Ring MIMO Antenna to reduce the Mutual Coupling" International Conference on AISGSC [International Conference on Artificial Intelligence, Smart grid and Smart City Applications] PGS College of Technology, Coimbatore, 4-5 Jan,2019.

Student Achievements

- In the Body Building Championship 2019 conducted by Guntur District Body Building Association for the Guntur District, Mr.Lella Dinesh, a student of our college has got Silver Prize.
- VVIT's Basketball Team bagged a trophy in an inter-collegiate Basketball competitions held by JNTU, Kakinada at Dhanekula Engineering College, Vijayawada. A total of 22 colleges participated in this event. The team was lead by Mr. Sai Prakash.

- 225 VVITians are Certified by NPTEL
- National Voters day has been conducted in the college for students
- LLR Mela Conducted at VVIT
- Gandhi Remembered on his Death Anniversary
- VVIT got Best National Employability Award from Aspiring Minds Institution which is given to the Engineering Colleges for the Best National Employability.
- The students of VVIT, Nambur conducted a 33 KM National Integrity Walk - Darga to Durga 2019.

- VVIT Won Basketball Championship at SRM University

Student Contribution

- Mr.I.L.J.Bhaktha Singh, Supervisor, National Service Scheme has been awarded with Chatrapathi Award 2019 by Sivaji Youth Foundation, Andhra Pradesh. This award is given every year to the people who have done exemplary service in the social service field, blood donation and cleanliness of surroundings.
- A conference on Organ Donation has been conducted by the National Service Scheme Branch of the College on February 28, 2019 in the college premises.

Faculty Articles

Alcohol Detection by using IoT and Locking the Car Ignition

Abstract – Drunk driving is the reason behind most of the deaths, Since the Drunk Driving Detection and Car Ignition Locking Using Raspberry Pi aims to change that with automated, transparent, noninvasive alcohol safety check in vehicles. This system is aimed at making vehicle driving safer than before and protect the accidents from happening because of the alcohol consumption of the driver many accidents are occurring. The person when he is at vehicle, we have to derive the driver's condition in real time environment and here we proposed the detection of alcohol using alcohol sensor connected to raspberry. This sensor is embedded on the steering of the car, such that when the level of alcohol crosses a permissible limit, where the ignition of vehicle will turn off and the engine will stop. By using wifi module his details will be sent to the family members directly. The raspberry pi processor constantly processes the alcohol sensor data to check drunk driving and operates a lock on the vehicle engine accordingly.

Keywords – component: Alcohol Detection System, Locking the Car Ignition, Accident prevention, Raspberry pi, Alcohol Sensor and Wifi module.

- Organisation of Scientific Research and Development in Chennai on February 12, 2019.
- 27 students have got placement offers from the prestigious H.C.L. Technologies.
- APSCHE's Secretary Visits Siemens COE.
- Famous Management Strategy Adviser Axel Angeli has visited VVIT.
- The fifth International Yoga Celebration Day has been conducted on a grand scale in the college on June 21, 2019.
- Dr.Sangu Ravindra, Professor, EEE Department of VVIT has been awarded with Young Scientist Award by International Scientific Research and Development in Chennai on February 12, 2019.

I . INTRODUCTION

India had earned the dubious distinction of having more number of fatalities due to road accidents in the world. Road safety is emerging as a major social concern around the world especially in India. Drinking and driving is already a serious public health problem, which is likely to emerge as one of the most significant problems in the near future. The main purpose behind this project is "Drunk driving detection". Since many accidents are happening because of the alcohol consumption of the driver or the person who is driving the vehicle. Thus Drunk driving is a major reason of accidents in almost all countries all over the world. Alcohol Detector. Hence the system reduces the quantum of road accidents and fatalities due to drunk driving in future.
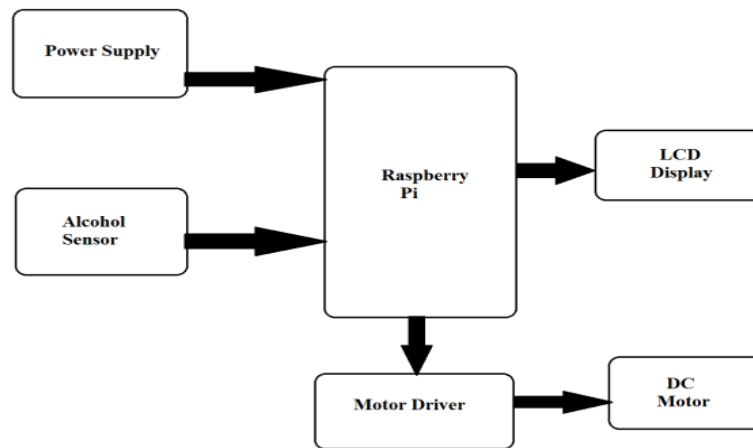
II. HARDWARE MODULES

Figure 1-Hardware Module

The entire system adopted the Raspberry kit, the principle of the hardware chart as shown in figure1. The core functions modules are Raspberry, Alcohol Sensor, GPS Module, GSM Module, 16x2 LCD Display and DC Motor.

ALCOHOL SENSOR: It is used to sense the alcohol. The analog output of which is applied to the Raspberry board.

GSM: It is used to send an SMS to the contacts of the user about the location of the vehicle. It is beneficial in emergency situations.

GPS: It is used to track the location of the user whichis send via SMS through GSM module.

LCD: If alcohol is detected it displays the message indicating "ALCOHOL DETECTED"

DC MOTOR: It is used as a dummy for indicating

Raspberry:

Features:

CPU: quad-core 64-bit ARM cortex A53 clocked at 1.2 Gl lZ

GPU: 400 Ml lZ videocore IV multimedia Memory:1GB LPDDR2-900 SDRAM USB PORTS:4

Video output:1 IDMI,composite video Network:10/100 Mbps Peripherals:17GPIO

Bluetooth:4.1

Power sourcs:5V via micro

USB Size:85.60mm

Weight:45g

Sensor:

Gas sensor has high sensitivity to Alcohol, and has good resistance to disturb of gasoline, smoke and vapor. The sensor could be used to detect alcohol with different concentration; it is with low cost and suitable for different application.

Sensitivity Adjustment:

Resistance value of MQ-3 is difference to various kinds and various concentration gases. So, when using these components, sensitivity adjustment is very necessary. It is recommended to calibrate the detector for 0.4mg/L (approximately 200ppm) of Alcohol concentration in air and use value of Load resistance that (RL) about 200 KΩ (100KΩ to 470 KΩ). When accurately measuring, the proper alarm point for the gas detector has to be determined after considering the temperature and humidity influence.

1) Character configuration:

- Good sensitivity to alcohol gas
- Simple drive circuit
- Long life and low cost
- High sensitivity to alcohol and small towards benzene

Fast response and High sensitivity and stability and long life.

2) Specifications:

- Power supply needs: 5V
- Interface type: Analog
- Pin Definition: 1-Output 2-GND 3-VCC
- High sensitivity to alcohol and small sensitivity to Benzene
- Fast response and High sensitivity
- Stable and long life
- Simple drive circuit with size: 40x20mm

A. GSM Module

The GSM net used by cell phones provides a low cost, long range, wireless communication channel for applications that need connectivity rather than high data rates. Machinery such as industrial refrigerators and freezers, HVAC, vending machines, vehicle service etc. could benefit from being connected to a GSM system.

B. LIQUID CRYSTAL DISPLAY

LCD (Liquid Crystal Display) screen is an electronic display module and find a wide range of applications. A 16x2 LCD display is very basic module and is very commonly used in various devices and circuits. These modules are preferred over seven segments and other multi segment LEDs. The reasons being: LCDs are economical; easily programmable; have no limitation of displaying special & even custom characters (unlike in seven segments), animations and so on. A 16x2 LCD means it can display 16 characters per line and there are 2 such lines. In this LCD each character is displayed in 5x7 pixel matrix. This LCD has two registers, namely, Command and Data.

Figure2 Liquid Crystal Display

C. DC Motor

This 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. If the direction of current in the wire is reversed, the direction of rotation also reverses. When magnetic field and electric field interact they produce a mechanical force, and based on that the working principle of dc motor established. The direction of rotation of a this motor is given by Fleming's left hand rule, which states that if the index finger, middle finger and thumb of your left hand are extended mutually perpendicular to each other and if the index finger represents the direction of magnetic field, middle finger indicates the direction of current, then the thumb represents the direction in which force is experienced by the shaft of the dc motor.

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Figure 3 DC motor

D. Alcohol Sensor MQ

The analog gas sensor - MQ3 is suitable for detecting alcohol, this sensor can be used in a Breathalyzer. It has a high sensitivity to alcohol and small sensitivity to Benzene. The sensitivity can be adjusted by the potentiometer. Sensitive material of MQ-3 gas sensor is SnO2, which with lower conductivity in clean air. When the target alcohol gas exist, the sensor's conductivity is higher along with the gas concentration rising, use of simple electro circuit, Convert change of conductivity to correspond to output signal.

Figure 4 Alcohol sensor

III Existing system

A person is considered to be legally intoxicated and prohibited from driving vehicle if his blood alcohol content(BAC) is 0.08% or greater. the three most common methods for testing BAC are breath, blood and urine test.

1. Breath testing:

It is the most common method used by law enforcement to estimate BAC because breath analysis devices are light weight, portable and provide immediate results.breathalyzers measure the alcohol that passes through alveoli air sacs as blood flows through vessels in the lungs.

2. Alcohol biomarker:

Carbohydrate-deficient transferring known as %CDT is a blood test to detect heavy alcohol use over the past two weeks.this alcohol biomarker can provide clinicians with an objective way to screen and monitors clients in treatment for alcohol use disorders.

3. Booze test:

A battery of new tests on blood ,urine and hair can reveal how much someone has drunk not only in the past days but also in past weeks and months. One serious road accident in the country occurs every minute and 16 die on Indian roads every hour.1214 road crashes occur every day in India. Two wheelers account for 25% of total road crash deaths. In road accident 377 people die every day, equivalent to a jumbo jet crashing every day. In Tamil Nadu is the state with the maximum number of road crash injuries. . Even though many schemes available to detect alcohol where no decrease in the rate of road accidents occurred because of that many properties and lives are lost this has to overcome by our proposed system.

IV Proposed system

Here we propose a system where the person is detected for alcohol level in his body to avoid accidents. drivers will be sensed before they start their vehicle. Driver will be sensed by an sensor once he sited on the driver seat

by his breath. sensor is placed in the steering to monitor the breath level if the alcohol content in breath is 0.08% then car engine will not ignite. in this system if the driver is not drunk he can drive otherwise he can't drive until the alcohol content decreases. This is the structure where the sensor is placed in the steering. It will sense the drivers alcohol content in his breath.

Trail 1:

Raspberry pi is configured and connected with the sensor also LCD display and one dc motor is connected. once the connection is given power supply is given to it so that the motor will start running now alcohol is

sprayed in it where the alcohol content is above 0.08% so the LCD display will show that alcohol content is overflow, dc motor will stop running and ignition also stopped. The screenshot for the trail done is
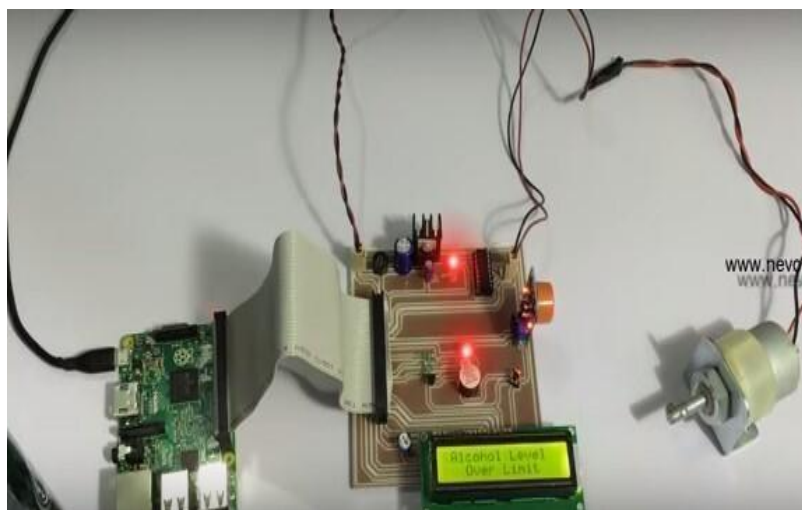

Figure 6 Trial Screenshot

This process is implemented same in all vehicle where the car engine will be connected to the sensor. once the sensor sensed its output will be sent to the motor by referring the range engine will stop its execution While implementing this proposed system we can reduce the accidents by 75% and reduce the loss of property and lives.

Conclusion

An effective solution is provided to develop the intelligent system for vehicles which will monitor various parameters of vehicle in between constant time period and will sent data to the concerned persons. this is done by using platforms like raspberry , sensor, dc motor ,LCD display. the whole system has the advantage of small volume and high reliability .future scope of this system is to control the accidents and reducing the rate of the accidents .this system brings innovation to the existing technology in the vehicles and also improves the safety features, hence proving to be an effective development in the automobile industry.