NATIONAL CONFERENCE ON INNOVATIVE TRENDS IN ENGINEERING & TECHNOLOGY – NITET-18
16-17th March 2018
NOVATEUR PUBLICATIONS
International Journal Of Innovations in Engineering Research And Technology [IJIERT]
ISSN: 2394-3696

AUTOMATIC OVER SPEED INDICATION AND ACCIDENT PREVENTION OF SMART VEHICLE

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ABSTRACT
In current world two wheelers plays main role of transport or travelling. They are useful but also responsible for some unexpected incident like accident by mistake of drivers. Over Speed is one of the main reasons for increase in the occurrence of accidents nowadays due to the advanced technology of smart and handheld phones is a crazy gadget of the today's youth and population density is high hence traffic rules are very strict accident may happen any time any where due to small negligence & over confidence accident happens due to over speeding. This concept is based on prevention of accident by messaging to responsible person & automatic removing side stand when automobile ignition is ON. Many techniques are being used for over speed monitoring. The object of this project is to detect the speed of the vehicle, if the speed of any vehicle exceeds the speed limit, it will send the message to parents or register number using GSM. Similarly, if vehicle user is busy in attaining phone & start ignition forgetting to remove side stand at turning point accident may happen so by giving signal to Arduino will provide mechanism to remove side stand automatically. This project designed with Arduino by interfacing GSM, servomotor, IR sensor for speed measurement detection.

KEYWORDS— Arduino Module, GSM module, IR sensor

I. INTRODUCTION

As we know in our daily life due to advance technology like handheld gadgets or cell phone or any automatic devices in any area of the field life is becoming so easier that we are busy in many works and that work is maximum execute by cell phone in malls for ticket reservation in offices in bank and in conjunction with that we has so many task perform or work due to silly mistake that was major problem .If a college boy asking for a bike to their parents and insisting high ended features. One thinking is that the security is very important and that to protection place a vital road. Many accidents happens due to lack of judgment of riding, while overtaking if a vehicle rider forgets to remove a side stand accident may happen while taking the left turn and secondary if over speeding happens then accident may happen these two problems can be sort out by our new concept that our project "Automatic Over Speed Indicator and accident prevention for smart vehicle"

II. PROPOSED WORK

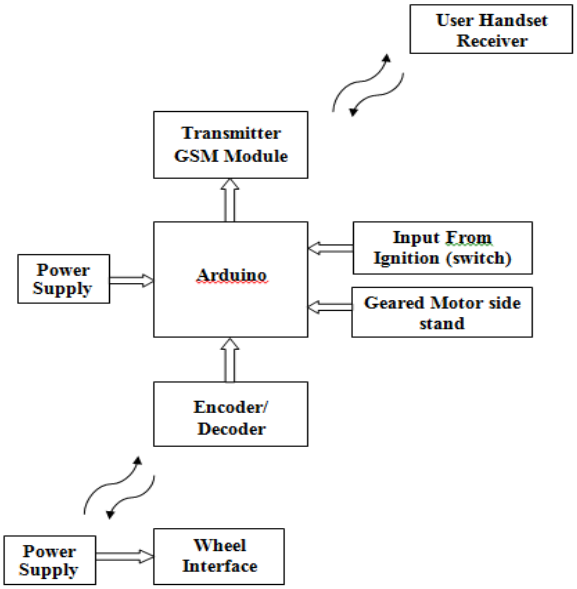

Fig 1. Block diagram of proposed work

A) Ignition Switch

A push to on switch is connected to arduino pin number 7 where input is given via switch to operate aide stand of a vehicle using stepper motor

B) Power Supply

Power supply is provided to our system. In this system two type of voltage are required that is 9 volt and 12 volt. Arduino uses 9-volt supply and DC motor (300Rpm) uses 12-volt supply for operating wheel which is provided by battery.

C) Arduino Uno

The Arduino Uno is a heart of our proposed system. It is a one type of microcontroller board. For GSM module we can use pin number 1 and 0 transmitter and receiver respectively, for stepper motor use pin number 8 and 9, switch use pin number 7, for IR sensor pin $A_{0,}$5V, GND use for data, +VCC, ground respectively.

Arduino Features

- DC Current per I/O Pin: 40 mA
- Clock Speed: 16 MHz
- Flash Memory: 32 KB of which 0.5 KB used by bootloader
- Input Voltage (recommended): 7-12V
- Digital I/O Pins: 14 (of which 6 provide PWM output)
- EEPROM: 1 KB (ATmega328)

D) IR sensors

IR sensor of 38KHz is utilized to monitor speed of the vehicle and it send to the arduino board continuously, when speed cross the limit i.e. 70kmph a message is sent via GSM.

E) GSM module

GSM module is the “Global System for Mobile Communication”. GSM module receives signal from arduino where speed is above limit ie.70kmph and transmit signal in the form of text message to user

handset or parent register mobile number. Following are the Commands used. AT+CMGF= 1, AT+CMGS, AT+CMGS, AT+CMGR.

III. WORKING

In the "automatic over speed indicator and accident prevention for smart vehicle " when the rider is busy on the cellphone and he is initiating the bike or vehicle and if he forget to remove side stand by turning ON ignition by inserting the key then the input is send to the stepper motor and stepper motor operate and side stand will be automatically pulled up or remove from vertical position to the horizontal position and the secondary thing is when the bike or vehicle is start and rider is riding then with IR sensor speed of vehical is monitored and sense the speed in rpm so when the motor or bike cross the speed limit(ie.70kmph) sensor will sense and it will give alert signal through GSM to register mobile no.in the form of text message .In the absence of network then it store message in a internal memory ,it send message when it regain the network. Generally when speed is in limit no message will be send AT Commands such as ATD,ATA, or AT+CMGF,CMGR,CMGD etc. are used for mobile operations.

IV. FLOWCHART

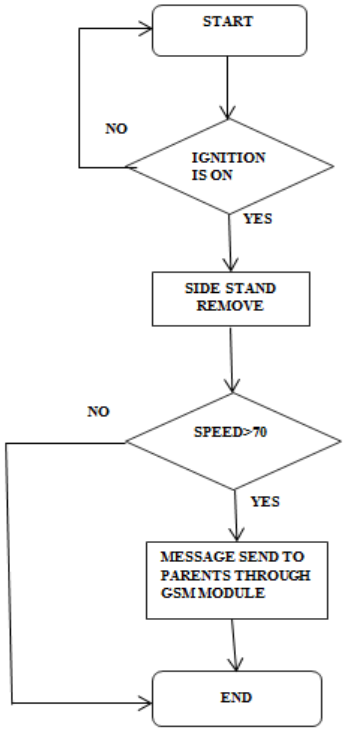

Fig 2. Flow chart of proposed work

V. MERITS AND FUTURE SCOPE

Merits:

1) Accident can be prevented or minimize.
2) Status of the vehicle is monitor.
3) Voice command can be send for alertness.
4) Easy to design a prototype.
5) Time to market.

Future Scope:
1) Automatic balancing.
2) Video surveillance.
3) Use of GPS to find position.
4) Automatic speed controlling.

VI. CONCLUSION

With the help of this system concept of small silly mistake are ignorance done by the youngsters where relates to major accident minimize by system application and warning also be initiated.

VII. ACKNOWLEDGMENT

Authors would like to express a deep gratitude to Guide Prof. Smita Babaladi, HOD (E&TC Dept.), Principal, A. G. Patil Institute of Technology, Solapur for providing platform for research work. Authors are also grateful to anonymous reviewers for providing valuable feedback to improve upon the quality of the research paper.

VIII. REFERENCES

[1] Shivam S. Shinde, Aditi V. Lawate _Intelligent Automobil Accident Avoidance System _International Journal of Scientific & Engineering Research, Volume 4, Issue 10, October-2013
[2] Gustavo Marfia, Marco Roccetti, Alessandro Amoroso, and Giovanni Pau, _Safe Driving in LA: Report from the Greatest Intervehicular Accident Detection Test Ever'IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY, VOL. 62, NO. 2, FEBRUARY 2013
[3] Manuel Fogue, PiedadGarrido, Francisco J. Martinez,Juan- Carlos Cano, Carlos T. Calafate, and Pietro Manzoni_Automatic Accident Detection' ,IEEE VEHICULAR TECHNOLOGY MAGAZINE | SEPTEMBER 2012
[4] Abhi R. Varma, Seema V. Arote,ChetnaBharti, Kuldeep Singh _Accident Prevention Using Eye Blinking and Head Movement' Emerging Trends in Computer Science and Information Technology - 2012(ETCSIT2012) Proceedings published in International Journal of Computer Applications (IJCA) 18 , vol. 1, no. 1, p. 55, 2000
[5] "Autonomous Speed Control of Over Speeding Vehicles Using Radio Frequency" International Journal of Engineering and Innovative Technology (IJEIT) Volume 4, Issue 4, April 2015.
[6]"Automatic Vehicle Speed Control with Wireless In-Vehicle Road Sign Delivery System Using ARM 7" International Journal of Engineering and Innovative Technology (IJEIT) Volume 2, Issue 8, April 2015.
[7]"Automatic Vehicle Speed Reduction System Using RF Technology" International Journal of Engineering and Innovative Technology (IJEIT) Volume 4, Issue 4, April 2014.
[8]"Design of RF based speed control system for vehicles" International Journal of Engineering and Innovative Technology (IJEIT) Volume 1, Issue 8, May 2012.
[9]Based In-Vehicle Alert System for Road Oddities Proceedings of the IEEE International Conference on Advances in Intelligent Computational
Systems, Trivandrum, India, Sept 22 -24, 2011.
[10] Telaprolu,m.k, sarma,V.V.; ratankanth, E.K.;Rao, S.N.; Banda,v., vehicular Electronics and safety (ICVES), IEEE international conference pune(2009).