



Speed Controlling System using RFID Technique DC Motor

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ABSTRACT:

Nowadays most of the people are using bikes with no proper age limit without having a proper knowledge on driving. This leads to some minor and major accidents for people which causes a huge damage to their lives. According to WHO 4,50,000 accidents take place in India 1,50,000 people are injured per year. Compared to the last few years the accidents that are happening on bikes are more than other vehicles like cars, buses etc. In 2022, 1214 road crashes occur every day in India and 25% of the people are crash deaths due to two wheelers. Up to now the speed controlling mechanisms are implemented in cars like automatic speed controlling using different methods some of them like RF based systems, automatic vehicle speed controlling systems etc. For example, Tesla, Mahindra XUV800 are the examples of the automatic speed controlling of cars. One of the main disadvantages of driving bikes by children without proper balance of bike and knowledge causes 20 children under the age of 14 everyday due to road crashes in the country.

These are the main reasons in our country getting accidents of people (children, youth) at such a small age. So, there is no proper solution for this up to know to control the speed of a bike in our real world but there are some vehicles like electric bicycles invented recently which are related to speed controlling systems. Based upon the above problems and disadvantages we came up with a solution "speed controlling system" to control the speed of a bike using an application interface which will help the users (children, youngsters, middle aged) people to control speed of the bike. The main advantage of our idea is to fix the speed of the bike and can control it by the users. For example, if a bike was given to the children a parent can control the bike speed using that application it can assure a parent that his/her children can drive safely. Not only for children it can be used for all ages to ensure safe driving.

KEYWORDS: Cloud, application, ESP8266 Node MCU.

I. INTRODUCTION

Nowadays most of the people are using bikes with no proper age limit without having a proper knowledge on driving. This leads to some minor and major accidents for people which causes a huge damage to their lives. Most of the people are interested in driving bikes without having any proper knowledge and most of them consist of small children and the persons whose age is below 25. This is due to their improper knowledge on bikes and reckless driving. This impacts their whole lives which may lead to huge consequences in their family. Recent studies show that a third of all deaths or Serious accidents are associated with excessive or Improper speed, as well as changes in the road (such as the presence of roadworks or unexpected obstacles).

In proposed systems we can control the cars in restricted areas but there is no solution for controlling speed all the time. In RF based speed controlling systems the major idea is by using radio frequency identification (RFID) technology. The technology is also effective in harsh weather conditions. In the zebra line detection and speed controlling system they used raspberry pi for controlling speed of a vehicle. The project is targeted on detecting zebra lines within the zones. The main objective is to style a system meant for vehicle's speed management and horn in these zones which might run on Raspberry Pi.

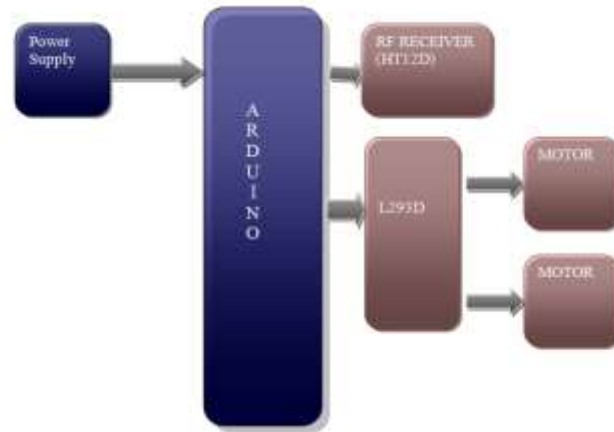


FIG.1 RF BASED SPEED CONTROLLING SYSTEM

II. LITERATURE REVIEW

In [1], It consists of designing fuzzy and PID controllers for controlling the vehicle speed. The dynamic of the system is modeled to provide a transfer function for the plant. Fuzzy and PID controllers are designed for linear models. The external disturbances such road grades are considered to stabilize the system. The controllers have been designed for cruise control systems. Better and great stability can be estimated from a fuzzy controller. In [2], The speed control system aims to monitor the speed of vehicles precisely. When the vehicles reach 95% of the allowable specified speed of road, the system warns the driver. If the vehicle exceeds the deliberate speed, the system takes a digital image of the vehicle and license plate. The image taken from the discarded vehicle was placed with time, date, speed and location through the code in the MATLAB.

In [3], In this proposed system the system controls the speed of a vehicle automatically when road sign of restricted areas are detected using video processing for that a small camera is mounted on vehicle and it records the video of road with traffic sign the recorded videos are transferred for video processing after every 1 second interval .Then these videos are converted into frames and compare it to the reference image available into the system database. In [4], The proposed method of this work are collision notification that gives notification about accident to the victims relative, red light traffic control makes sure vehicle doesn't brake signal, speed control alters speed in different zones and prevent vehicle from entering no entry zones, horn control prevents no honking in horn prohibited zone and alcohol detection detects drunk driving.

III. PROPOSED SYSTEM

The proposed system contains two (2) parts in development of the project. They are as follows.

1. User Mode
2. Normal Mode

Let us understand every part briefly.

a) User Mode

1. The user mode application contains a fixed speed limit control which helps to control speed of the bike.
2. This would help the user to set the speed limit of the bike, so that the person who drives the bike would not be able to exceed that speed limit.
3. This helps to reduce accidents as well as it helps us to improve our driving skills.

The main purpose of this Idea is to control the speed of the bike while the person is driving. By implementing this idea, the user can control the speed of the bike by application interface. So, the person can drive a bike at a limited speed so that we can reduce accidents. By implementing this idea, the persons can improve their driving skills because of this they can drive bikes safely in any situation.

Our application can work through the cloud, the speed limit set by the user is uploaded to the cloud and the bike gets locked with the fixed speed. When the user selects the normal mode the speed lock is deactivated and it comes to normal state. This helps in many ways for the people to get rid of the accidents. When the user mode is activated by the user then the speed limit is managed by users. The whole process works through a cloud environment. This application contains security with username and password accessed by the user.

b) Normal Mode

If we want to quit the child mode and there is no need to access the speed of the bike then the users can automatically come back and click the normal mode button. Whenever we click the normal mode within a fraction of seconds the values in the cloud become zero.

We defined that when the value is zero (0) the user is in normal mode the bike will not have any speed restrictions. This whole procedure works through the **thing Speak cloud** environment.

There is a special restriction for accessing this mode which helps the users form unauthorized access. Normal mode can only be used by the users who have proper login credentials. The user can login to the application by using their login credentials. If they entered incorrect credentials they will be back to the home safely.

IV. SYSTEM ARCHITECTURE

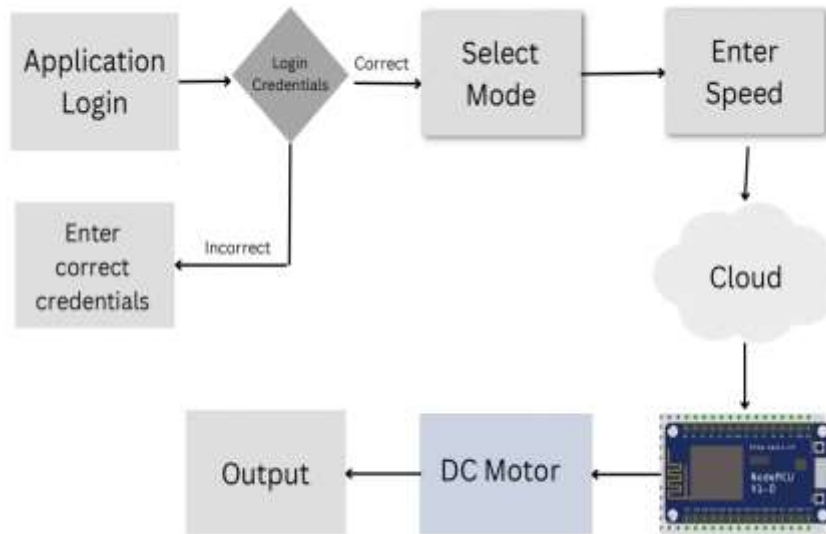


FIG .2 SPEED CONTROLLING SYSTEM ARCHITECTURE

First the user has to login to the application using login credentials. If the login credentials are correct it takes into the selecting modes which is used to enter the speed of a bike else it gives a warning to enter the correct details of an application. After successfully login it shows two modes like user mode and normal mode.

USER MODE: In user mode the user has to enter the speed of bike according to his information. Then the speed of a bike is fixed and the user has to drive the bike in that fixed speed.

NORMAL MODE: The normal mode is used to exit from user mode and speed of bike is dynamically increased based on the user situation.

ALGORITHM

1. Open the application.
2. Enter the login credentials.
3. After successfully login it has two modes.
 1. User mode
 2. Normal mode.
4. In user mode the user can fix the speed according to the conditions.
5. Normal mode is used to exit from user mode and the user can dynamically uses the speed according to the conditions.
6. The speed is uploaded to cloud and from cloud to it loaded into ESP8266 Node mcu (ARDUINO).
7. After successfully loaded it gives output to the DC MOTOR
 - In this working model first of all the user has to enter into the application by using their inputs (mobile no, password).
 - After successfully entering into the application the user has to select the desired mode like user mode to start their usage of the application. If he/she selects the user mode then they have to give the inputs regarding their condition.

- After usage of modes if they want to exit from that they have to click on Normal mode and they can use the bike as normally they are using in their daily life.
- The speed that they entered in user mode will upload into the cloud and from the cloud it was transferred to dc motor and it starts working based on the speed the user has fixed.

V. CONCLUSION

In this paper we proposed a new system in bikes that makes the users safe driving by controlling the speed of a vehicle. In this system the users have to control the speed of a bike and they have to fix the speed by themselves when given to their children, relatives etc and also for learning the vehicle in a safe way. In our application only the verified users can control the speed when given to the users. It makes the users in a friendly way while driving the bike. The modes that we proposed in this system can handle the speed of a bike based on their conditions.

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