SPEED CONTROL OF VEHICLE INSIDE COMPANY PREMISES USING RF ID AND GETTING NOTIFICATION THROUGH IOT

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Introduction

In this project, we are using RFID module to limit vehicle speed. The RF transmitter will be placed at first and last of the restricted areas and RFID receiver should be placed inside the vehicle.
The vehicle speed was obtained by speedometer which is available in vehicle. And that speed is compared and monitored by the controller. If the vehicle speed exceeds the limited speed, It automatically controls the speed of the vehicle according to that particular zone. Hence, automatically the speed reduced. If there is any emergency, a switch will be available in the vehicle. When the switch is ON, the speed is not controlled automatically. The vehicle which is switched ON, that vehicle number was sent to security officials & medical officials through Internet of Things(IOT) & Their driving route is saved on the cloud.

Problem Statement

Now-a-days industrial accidents are occurring frequently. The most unfortunate thing is that by making small mistakes during driving, we lost our valuable future.If we observe, most of the accidents will occur near crossings, turnings, railway crossings, pedestrian areas & hilly areas. Even a security officials & medical representatives can't monitor all such kind of accidents. So in order to reduce the number of accidents and to control the vehicle speed the safety department has placed the signboards. But it is difficult to observe such kind of signboards and hence accidents will occur. This project will provide a new way for controlling the speed of the vehicle without harming others.

Methodology

Prototype model of a vehicle in a company premises.
After RFID punch the vehicle is now under guidance of specific rules of company.
If the vehicle crosses the speed limit, a notification will automatically send to the authority as well as notify the driver. If the driver wants to bypass the system, then a notification is sent to the authority. During exit of the vehicle outside the premises a notification of exit will appear on the display and the vehicle is now out of restrictions.
Using the RFID network, the analysis of traffic, selecting the signal and time allocation for the signals can be done, it can be controlled automatically and zero accident rate can be obtained.

• Vehicle is attached with pre-defined RFID tag.

• The entire system is connected with Internet of Things

• When the vehicle is entering IR sensor activated.

• And the entire system get activates.

• Entering at the checking point, RFID reader reads the information from the tag
• If both are matched, then to allow the vehicle gate opens.

• Unauthorized vehicles are forced to stop and issue some fine and/or allowed.
• Registering in IoT will help to count the number of vehicles are entering and numbers of vehicles are leaving.

• And prevent from the theft vehicles

Result Analysis

➢ Most road accidents occur due to over speed and rash driving of vehicles on public roads. The rate of accidents has increased as more vehicles are being manufactured and sold. Usually the drivers drive the vehicles at high speed without considering the public in speed limited areas. Even though the traffic police control them, we cannot achieve full response from them. Thus, the need to monitor those areas at all time to regulate their speed using RFID technology.

➢ Using the RFID network, the analysis of traffic, selecting the signal and time allocation for the signals can be done, it can be controlled automatically and zero accident rate can be obtained.
➢ In previous works there is a no option for security notification option we are implementing this in our project.

➢ We are adding an emergency button also for exception cases to increase the vehicle speed only during emergency and same will notified to security officials as well as medical representatives.
➢ We are also record the movement of emergency cases and save it to cloud for future references.

➢ Objective of our project is to detect as well as control over-speeding of vehicles in company premises for avoiding loss-time-injury (LTI) of a rider.
➢ To ensuring safety of pedestrians on accident prone areas inside the industry. This project can be used to avoid the rash driving of riders.

➢ This project allows user with rf id to enter the premises only. After entering industry premises it has to follow certain rules of industry to maintain safety standards as well as proper mobilisation of different work.

➢ This project with the help of microcontroller i.e. Arduino nano controls the speed of vehicle which is pre programmed in the microcontroller . The microcontroller activates after punching of rf id in the entry point of industry.

➢ Now microcontroller is activated now vehicle will follow a certain set of rules decided by the industry.
➢ It can't maximize it speed to 100% Efficiency.
➢ If the vehicle tries to maximize its speed to its maximum the microcontroller will turn off the engine of the vehicle and sends message to driver of vehicle as well as site manager.The vehicle manager may take strict action for breaking rules of industry.

➢ We have also installed a sensor at the exit point of the industry so that the vehicle's microcontroller get deactivated and it can maximize its efficiency according to the driver.

Photograph/Screenshot of Experiment/Simulations
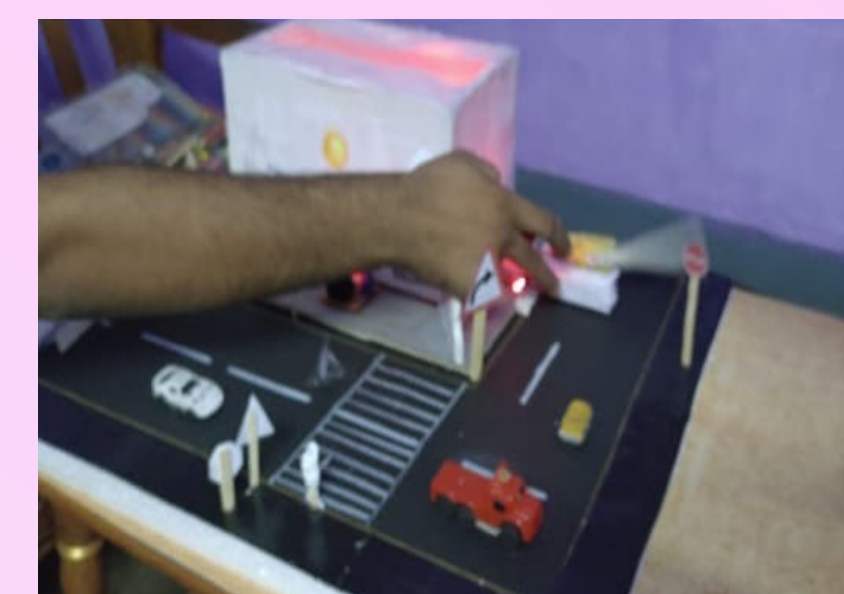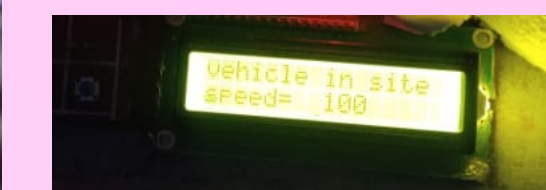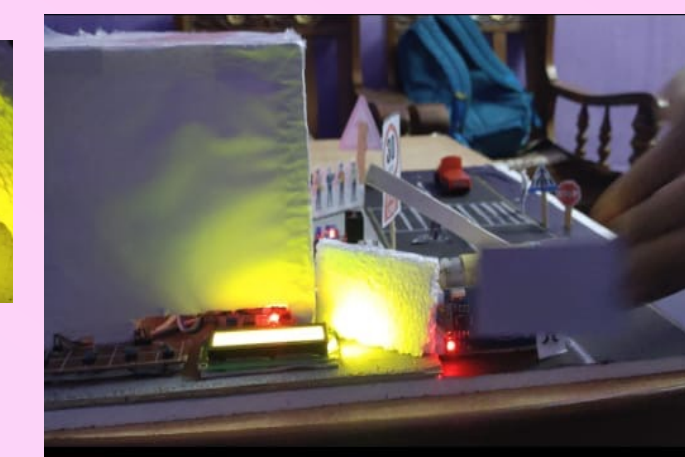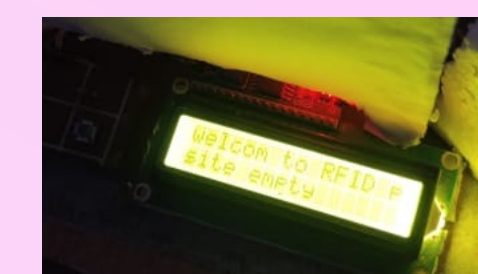
Application

- Speed limiting of vechile in speed limiting zones.
- System is proposed for vehicle access controlling and tracking in the combination of RFID with Automatic license plate identification.
- System is registered in IoT so that we can prevent stoling of vehicle.
- Speed will be controlled without prior knowledge of driver.
- Safety can be given against rash driving.

Conclusion

The project is created to avoid unnecessary accident that takes place due to small mistakes done by driver. The project proposed a computerized system that would automatically identify an approaching vehicle, record the number and time that the vehicle belongs to an authorized person or group, and automatically open the toll gates and the vehicle has to follow certain criteria. It can't maximize its speed to maximum value it ccan drive at a set limit of industry.

Future Works

This system can be enhanced into the advanced system which uses IoT concept to operate the vehicle remotely by anyone from anywhere in the world. It can be arranged in such a way that it can connect a call to the owner or it can send the information to the multiple persons. When accident is occurred the respective sensor will be in active mode and the owner gets the message with location values and automatically the vehicle stops. Unless and until the owner sends a start message the vehicle will not move.
If the vehicle speed exceeds the limited speed, It automatically controls the speed of the vehicle according to that particular zone. Hence, automatically the speed reduced. Also we will be creating an emergency switch to bypass the condition for emergency times. We have prepared this model for industry only later this model can be implemented anywhere in speed limiting zones.

References

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