Smart Transportation System and Stolen Vehicle Detection

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Abstract- Smart transportation system and stolen vehicle detection. This system was implemented based on present criteria that tracking three conditions in those are heavy traffic control and another one is making a root of emergency vehicle like ambulance and fire brigade and stolen vehicle detection. First part Congestion control It counts number of vehicles that passes on particular path during a specified duration using python code accordingly traffic signal light is displayed. Second part is for the emergency vehicle clearance here each emergency vehicle contains IR transmitter and IR receiver and Arduino will be implemented at the traffic junction emergency vehicle reaches the junction send signal through the IR transmitter to the IR receiver will communicate the traffic controller in the junction to turn on the green light emergency vehicle have personal code Face recognition method here we are avoiding the vehicle Theft. It allow the user to unlock the door only if the user is authorized. If the user is unauthorized then camera will capture the image of the person and sends the image to Registered mail Id. Here we are creating the web page using HTML and PHP .We can see the unauthorized person and can unlock the door using from where ever we want using web page.

I. INTRODUCTION

Human life is affected due to delay in the arrival of ambulance. The ambulance is not able to reach the hospital in the golden hour. It gets stuck in the traffic signals. It would be of great use to the patient if the traffic signals in the path of the ambulance are ON. There must be a system by which the ambulance would reach the accident spot and then hospital as soon as possible to carry out health services [1]. The existing systems are post accident detection systems. It has lack of intelligence. It fails to track the rear-end collision and predamage status. It depends on the way of monitoring people to be manual. It requires manual work to save human life which results in time delay and because of that first aid cannot be provided to the patient on time. This leads to loss of human life. In Pre-collision system, one or more systems may not activate due to sensing and tracking limitations. The actual field performance may be less effective. Limitations in the algorithms and sensors may cause difficulty in real world applications. Moreover, it may use more complex algorithms to determine collision risk. There will be different effectiveness for different algorithms. For the driver's state, there was only limited information available prior to the collision. There was no effect of pre-collision systems on driver maneuvers such as steering, other than breaking. Further simulation of driver braking deceleration without instrumentation in real-world collision was not feasible beyond constant magnitudes. It did not capture all braking inputs of driver that were possible [2]. These are the disadvantages of existing system.

Using Face recognition method here we are avoiding the vehicle Theft. It allow the user to unlock the door only if the user is authorized. If the user is unauthorized then camera will capture the image of the person and sends the image to Registered mail Id. Here we are creating the web page using HTML and PHP .We can see the unauthorized person and can unlock the door using from where ever we want using web page.

II. LITERATURE SURVEY

Traffic congestion is a major problem in cities of developing Countries like India. Growth in urban population and the middle class segment contribute significantly to the rising number of vehicles in the cities [6]. Congestion on roads eventually results in slow moving traffic, which increases the time of travel, thus stands-out as one of the major issues inmetropolitan cities. In [7], green wave system was discussed, which was used to provide clearance to any emergency vehicle by turning all the red lights to green on the path of the emergency vehicle, hence providing a complete green wave to the desired vehicle. A 'green wave' is the synchronization of the green phase of traffic signals. With a 'green wave' setup, a vehicle passing through a green signal will continue to receive green signals as it travels down the road. In addition to the green wave path, the system will track a stolen vehicle when it passes through a traffic light. Advantage of the systemis that GPS inside the vehicle does not require additional power. The biggest disadvantage of green waves is that, when the wave is disturbed, the disturbance can cause traffic problems that can be exacerbated by the synchronization.

III. BLOCK DIAGRAM

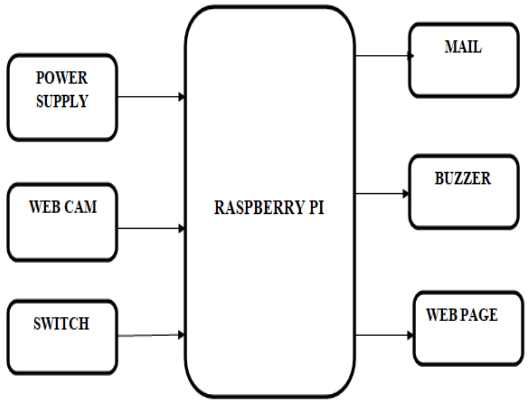


Fig.1: Block Diagram of Stolen vehicle system

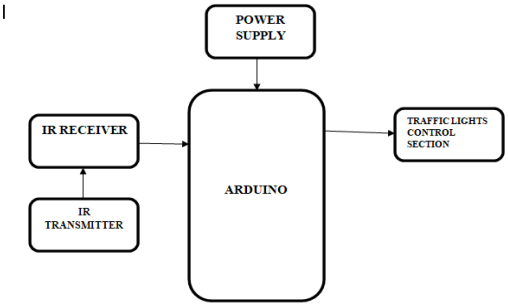


Fig.2: Block Diagram of Stolen vehicle system

Design and Implementation:

Smart transportation system and stolen vehicle detection. This system was implemented based on present criteria that tracking three conditions in those are heavy traffic control and another one is making a root of emergency vehicle like ambulance and fire brigade and stolen vehicle detection. First part Congestion control It counts number of vehicles thatpasses onparticular path during a specifiedduration usingpython code accordingly traffic signal light is displayed. Second part is for the emergency vehicle clearance here each emergency vehicle contains Ir transmitter and Ir receiver and Arduino will be implemented at the traffic junction emergency vehicle reaches the junction send signal through the ir transmitter to the ir receiver will communicate the traffic controller in the junction to turn on the green light emergency vehicle have personal code Face recognition method here we are avoiding the vehicle Theft. It allow the user to unlock the door only if the user is authorized. If the user is unauthorized then camera will capture the image of the person and sends the image to Registered mail Id.

IV. HARDWARE COMPONENTS

4.1.Raspberry-pi

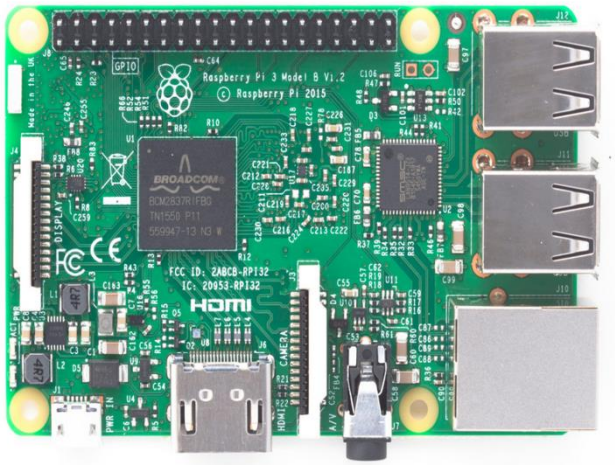


Fig.2:- Raspberry-Pi

The Raspberry Pi 3 Model B is the third generation Raspberry Pi. This powerful credit-card sized single board computer can be used for many applications and supersedes the original Raspberry Pi Model B+ and Raspberry Pi 2 Model B. Whilst maintaining the popular board format the Raspberry Pi 3 Model B brings you a more powerful processer, 10x faster than the first generation Raspberry Pi. Additionally it adds wireless LAN & Bluetooth connectivity making it the ideal solution for powerful connected designs.

4.2.DC MOTOR

Fig.3: DC Motor

DC engines are arranged in numerous sorts and sizes, including brush less, servo, and apparatus engine composes. An engine comprises of a rotor and a changeless attractive

field stator. The attractive field is kept up utilizing either changeless magnets or electromagnetic windings. DC engines are most regularly utilized in factor speed and torque. Movement and controls cover an extensive variety of parts that somehow are utilized to produce as well as control movement. Regions inside this class incorporate direction and bushings, grips and brakes, controls and drives, drive parts, encoders and resolves, Integrated movement control, restrict switches, straight actuators, straight and rotating movement segments, straight position detecting, motors(both AC and DC engines),

4.3.BUZZER

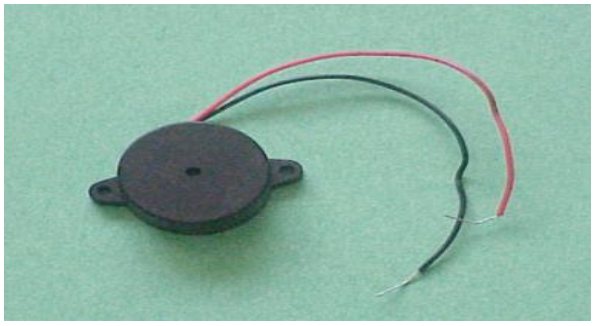


Fig.4: Buzzer

A bell or beeper is a sound flagging gadget, which might be mechanical, electromechanical, or electronic. Normal employments of ringers and beepers incorporate cautions, clocks and affirmation of client information, for example, a mouse snap or keystroke.

4.4 WEB CAMERA

Fig.5: Camera

A webcam is a video camera that feeds or streams its image in real time to or through a computer to a computer network.

The term "webcam" (a clipped compound) may also be used in its original sense of a video camera connected to the Web continuously for an indefinite time, rather than for a particular session, generally supplying a view for anyone who visits its web page over the Internet. Some of them, for example, those used as online traffic cameras, are expensive, rugged professional video cameras

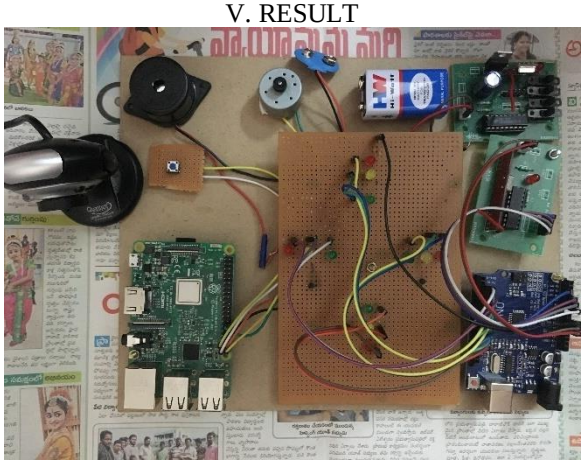
4.5 Arduino

Fig.6: Arduino UNO Board

Arduino is a software company, project, and user community that designs and manufactures computer open-source hardware,open-source software, and microcontroller-based kits for building digital devices and interactive objects that can sense and control physical devices [3]. The project is based on microcontroller board designs, produced by several vendors, using various microcontrollers

These systems provide sets of digital and analog I/O pins that can interface to various expansion boards (termed shields) and other circuits. The boards feature serial communication interfaces, including Universal Serial Bus (USB) on some models, for loading programs from personal computers. For programming the microcontrollers, the Arduino project provides an integrated development environment(IDE) based on a programming language named Processing, which also supports the languages C and C++.

V. RESULT



VI. CONCLUSION

With automatic traffic signal control based on the trafficdensity in the route, the manual effort on the part of thetraffic policeman is saved. As the entire system is automated,it requires very less human intervention. With stolen vehicledetection, Emergency vehicles like ambulance, fire trucks, need to reachtheir destinations at the earliest. If

they spend a lot of time intraffic jams, precious lives of many people may be in danger. With emergency vehicle clearance, the traffic signal turns togreen as long as the emergency vehicle is waiting in the trafficjunction. The signal turns to red, only after the emergencyvehicle passes through. Further enhancements can be done tothe prototype by testing it with longer range RF Transmitter and RF Receiver. we have implemented system by considering oneroad of the traffic junction. It can be improved by extendingto all the roads in a multi-road junction.

VII. REFERENCES

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