

# A NOVEL METHODOLOGY FOR CHECKING DRIVER ELIGIBILITY & CAR SECURITY USING IMAGE PROCESSING

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**ABSTRACT:** In the modern world, the roadway transport has become the major part in the transportation. In these days usage of car has become high and also the car theft and the drivers without license has become the major concern in our country. So in this project we came up with a solution to check the drivers eligibility and to track down the car which is theft easily.

**KEYWORDS:** RFID, ZIGBEE, EMBEDDED C, MATLAB, GPRS, ADXL335, Arduino mega

## III. PROPOSED SYSTEM

### I. INTRODUCTION

Vehicular accidents on the road have become common due to a lot of reasons, some of them include rapid increase in number of vehicles, growing number of irresponsible drivers and lack of proper driving skill. Thus, comprehensive and precise safety systems must be developed in order to save the lives of people and also the vehicles. In the past one year, road accidents have reached a million deaths worldwide, from which most of them could have been prevented if information was relayed to the authorities concerned on time. The safety of the drivers will also relate to the credibility of the drivers classification module under the hood is responsible for identifying the Hostile vehicle of the accident by image processing and image sensing techniques through collaborative remaking theory that involves breaking down a video into frames and scarp all the coded information in it.

The arduino mega is coded with the algorithm that separates the frames and shares the images to the nearby control room or police personnel in order to record the accident prior to its unveiling. Wi-Fi is to connect with cloud service which uses the location of the car to connect to the location of the nearby hospital to receive timely help and avoid death.

### II. EXISTING SYSTEM

In the existing system, there were no advanced technique used only way to check the drivers was to stop the vehicle in the traffic section and checking the

driver's license and it cause traffic jam in the peak hours.

The checking police cannot check every vehicle in the traffic section and the rate of accident had not reduced. So, we are overcoming this drawback in our project.

In the proposed system we are overcoming the major drawback by using fully automated mechanism. In our project we are using the IR sensor which will detect the whether the person is sitting on the driver seat and the details will be sent the microcontroller and if the IR sensor detects the person then he has insert the key the user has to keep the RFID tag in the RFID reader and in that the driver's license details is fed in that and it reads the details of the driver. From the microcontroller the command will be send to the camera and it will capture the face of the driver and then the captured face image will be compared with the face that fed in the system. If both the details are matched then the car mechanism will turn ON the car and if the details doesn't match then there will be a buzzer which will give the alarm. By this setup we can check the driver license. Addition to this setup we are adding checking mechanism in which there will be a checking lane in the road which will check the crossing car detail and also the detail of the driver through the ZIGBEE module and it will be uploaded in the server through the IOT module. And if the IR sensor didn't sense the presence of person then the details will be sent to the microcontroller and from there car will be immediately turned off by the help of motor mechanism. From that we are able to catch the car theft and the driver without license which will reduce the rate of accidents..

#### IV. ARCHITECTURE DIAGRAM

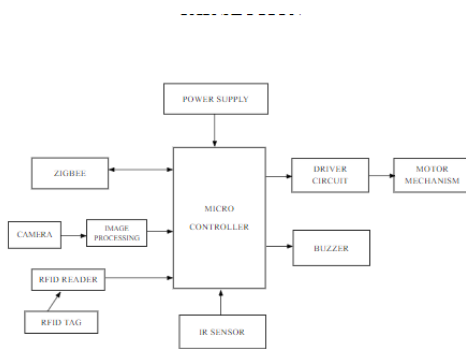
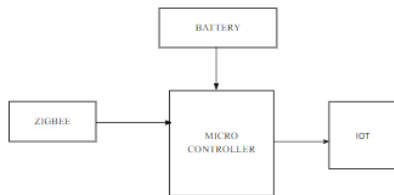


Figure 1: Basic Architecture Diagram

The tools used to capture the data of the license plate will be embedded in the RFID tag readers which when read will provide the information about the user and the car details. The details fetched will be sent to the Cloud and from there will be passed on to the Zigbee Interface which will automatically detect the changes done and the location of the car and the driver will be shared with the safety system and the credential will be checked every time the driver gets in the car.



The Zigbee will allocate the data according to the validation provided and the access will be again given to the IOT module and the IOT module will circulate the data through the cloud server to the safety center and therefore the driver will be accessed according to the data provided and interfaced.

#### V. HARDWARE REQUIREMENTS.

**ARDUINO MEGA:** Mega2560-CORE is a small, complete and breadboard-friendly board based on the ATmega2560. Its design is based on the Arduino Mega2560, so we can use it as an Arduino Mega2560 development board. In a different place, it lacks only a 6-foot download port and a reset switch. Reducing the hardware circuit that can reduce the power consumption and the cost. It is a single chip microcontroller and it is used in many projects where simple, low powered, low cost microcontroller. Mega2560-CORE has a matching download line and the other one end of the download cable is a USB interface, so it is very convenient for use.

**ZIG BEE:** ZigBee is designed for high level communication for personal use. Wi-Fi and Bluetooth cover a small distance and it will not be suitable for every application. So Zigbee is used to create a Personal Area Network. Here it is used to collect the driver's data from the car and to upload to the server through IOT module.

**IR SENSORS:** Infrared sensors detect the heat waves. Every object emits some kind of heat energy and it can be detected and identified by an Infra-red sensor. Here it is used to detect whether a person is present in the driver's seat or not.

**Power supply:** The prototype needs a power supply and it is powered by a 20w adapter.

**IOT MODULE:** It is also known as a radio chip. It is a small electronic device embedded to send and receive data. Here it is used to send the information collected from the Zigbee to the server.

**RFID TAG:** An RFID tag is a microchip combined with an antenna in a compact package; the packaging is structured to allow the RFID tag to be attached to an object to be tracked.

**RFID READER:** An RFID reader is a device that is used to interrogate an RFID tag. The reader has an antenna that emits radio waves; the tag responds by sending back its data.

**CAMERA:** It is used to capture the image of the driver and to check with the face in the driving licence.

**BUZZER:** If the key is inserted and if the Infra red sensor does not detect any person in the driver's seat then the buzzer starts to beep.

**LCD SCREEN:** LCD Screen is used to display the information of the driver's details, whether a person is detected or not, and to display the other progress.

#### VI. SOFTWARE REQUIREMENTS

**EMBEDDED C:** The Embedded C is used to proliferate the words that are done and the C will be done to connect the database and the device data IO. The hardware addressing will be done using MATLAB and the Embedded C will be jointly done to use the Database and the datasheets that are acquired from the IR sensors. The camera will capture the driver's entrance to the system and then the received data from the devices will be made into a JSON file and will be shared with the cloud database and the cloud server will then send the data to the Zigbee embedded C in the Zigbee system.

will understand the data and process necessary controls over the data acquired using the image processing the details from the RFID readers the user license and the car location will be again shared with the interfaced devices along the way .Finally the C is installed into each and every device in the architecture and the working of the each module will be in accordance with the datasheet from the server side analytics and the person or the system which monitors the system information is made to be cleared

**MATLAB:** When initiate the MATLAB the coding sequence starts with the code being written to be delivered to the system off shore. The algorithm used will be accessing the data within the system interface then the conduct of the data driven from the device will be sent to the proposed system model where the IOT module will act on the outsourced driven data tech info to provide validation against the driver details which can be done using the Zigbee interfacing And embedded C the mere result from the module will again be acquainted through the module of doubly literature to provide whether the given user of the driver is allowed to access the vehicle or not

The MATLAB also allows us to use various tools to create the datasheet to basically control the data received from the various input oriented devices and the values and the calculations made are sent to the certain libraries in the MATLAB interface to be all set for the computation to take place and easily the calculation made results are shared via the wifi and the other wireless connectivity to the base of the ZIG bee system to get the notified user details to be again received from the database and the user will be permanently saved to the database that is there in the cloud server. The database done from the MATLAB is one way oriented thus the data to be changed or modified requires special permission from the user to handle the driver access and provide control to the safety system therefore avoiding any jailbreak scenario's which are likely to be possible when there are large number of the users involved to actually carry on the interests of the system defaulted to do the job of validation

## VII. RESULT

Thus the Zigbee and the tag readers are set and when the driver crosses the reader the details are automatically checked before he leaves and the license is checked of its validity and the driver is not having the necessary documents will automatically noticed and the real time information will be fed to the Zigbee and from where the tracking of the particular vehicles begins and the actual path of the vehicle is noted down and finally the route is clearly fed to the database and the tag readers are set in place and th driver will be stopped from moving forward and thus preventing any causalities therefore having a safe way to transport

## VIII.CONCLUSION

This paper is proposed to detect the accident automatically and share information to the nearby hospital server in order to receive help in short time to avoid the situation to go out of control. This also shares pictorial information about the host vehicle of the accident to the nearby control room or police personnel. This proposed system is cheap and effective built on a powerful IoT base. Hence, this can be used in all the vehicles thus improving the safety system.

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