

Smart Car System: Review

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ABSTRACT: Automobiles remained conceived to save the required time and hard work of people, but that showed to be deadly as the number of vehicles increased on road. Driver faces many problem like parking issues, accident and traffic. Therefore it required to solve matters of mishaps caused by automobiles. There is a need to generate a clever device that is employer friendly that purposes to provide information like, humidity, temperature, and way, trip travelled, and other things to employers. Smart Cars can help to reduce the number of accident which occur due to many problems like communication, careless driving, poor visibility, etc. To enable message among 2 automobiles to avoid uncommon decelerating began by 2 automobiles in vicinity and to prevent mishaps, smart cars can be helpful. Intelligent Car is coming generation automatic car that provide user relaxed, luxurious and safe travelling with comfort. In this paper, reviews of different methods of making smart car are covered.

KEYWORDS: Bluetooth, Camera, GPS, Motors, Smart Car Parking, Smart Driving, Sensors.

I. INTRODUCTION

In 2010, there were almost 1.2 demises worldwide, i.e. 1 individual every 25 seconds was killed and wounded due to traffic crashes. To order to build an autonomous transportation network, a continuous speed restriction set by state law is a prerequisite. A specific speed restriction must be defined through utilizing GPS technology and the govt.'s server must be alerted if it crosses the average speed, including the date, time, locations and domestic data of the detectors. Most new developments weren't really introduced in cars, nor were the introduction of airbags, radios and much [1] by 1951. The GPS system was still not yet developed.

New solutions were then developed by organizations using advanced innovations, using different detectors due to advancements in technology. Today's technology contains driver assistance equipment and emergency safety mapping assistance, but not integrated into and regulated by the automobile in conjunction with such a smart system.

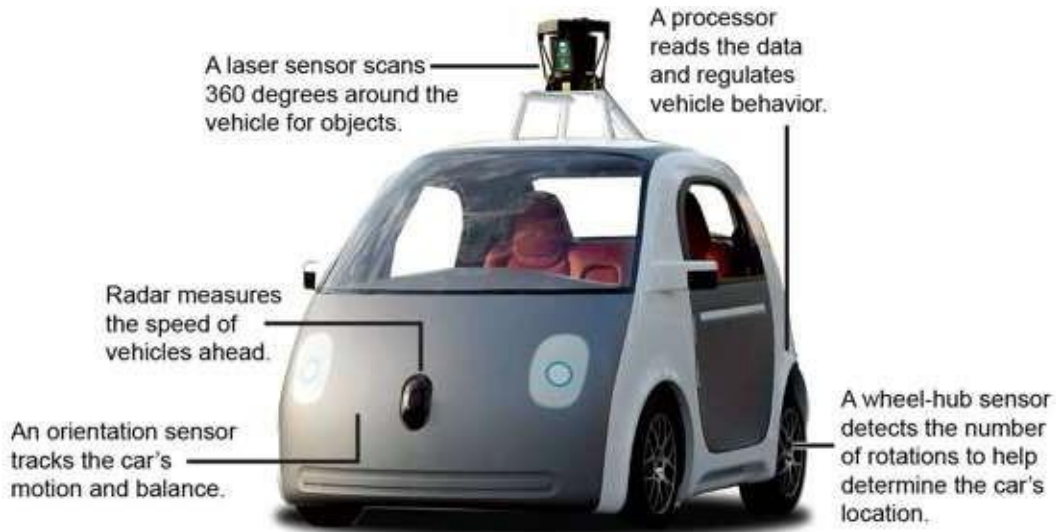


Fig. 1: Google Self-Driving car

Data collection is conducted by means of wireless computers and systems in an intelligent car system (as seen in Fig. 1) that capture and analyse information like overheated alert, bad air condition, low engine performance, gate locks, system inspection, and system tracking constantly. [2]

The lack of parking area in several public locations, including arenas, commercial centres, schools, hospitals, shopping centers and terminals is very popular at the present time. Government agencies are also aiming to improve the existing infrastructure including transit systems. The sluggish development in city design has, nevertheless, further exacerbated the problem. Parking restrictions is a general issue, particularly throughout peaks of numerous festivities in certain urban societies. [3]

II. METHODOLOGY

Android Application based Smart Cars:

They provided several clever tools to help drivers reduce the number of cars management. Such intelligent apps provide the user with updates / warning about driving conditions. They also have protective precautions for car theft / key lost.

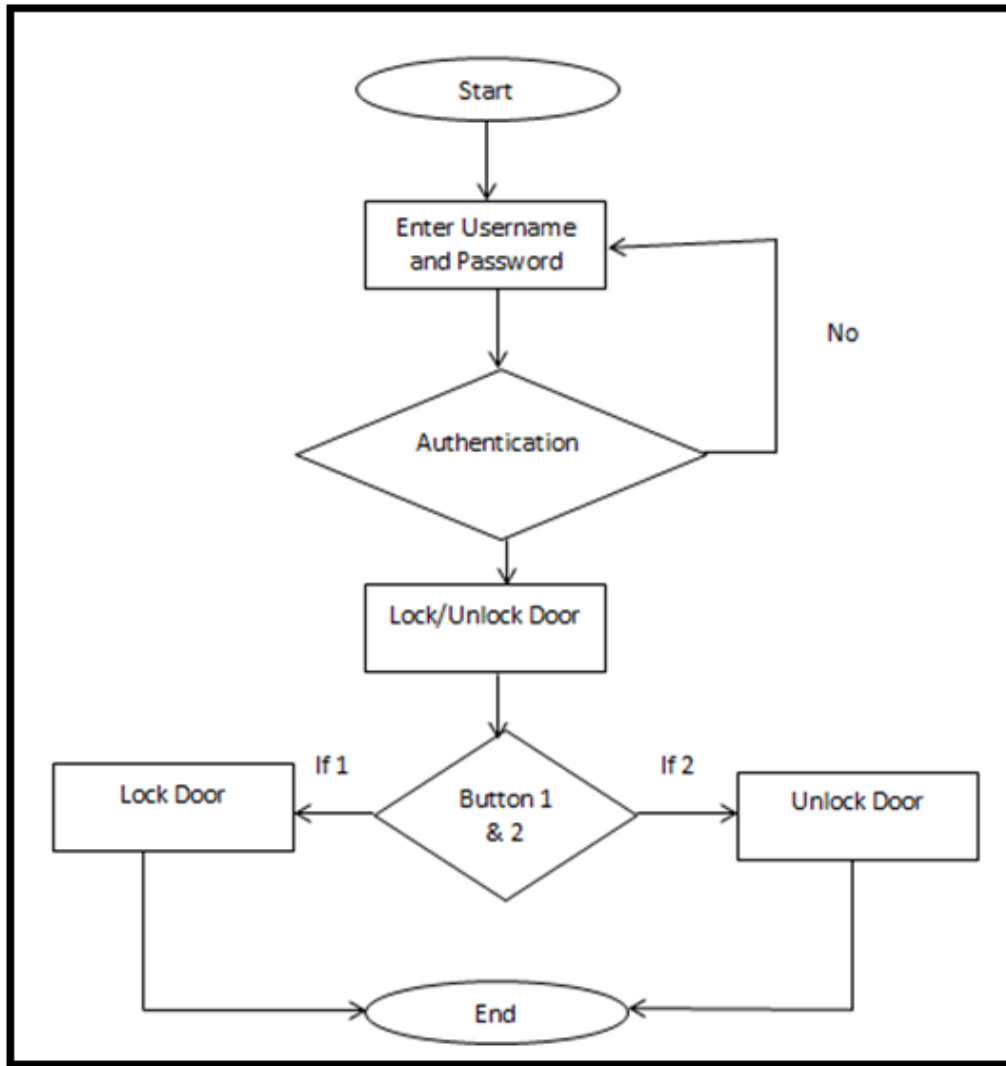


Fig. 2: Flow Chart of Door Lock/Unlock

The system can regulate the velocity of the car, path and length. The detectors used in the framework can identify the barriers, the footballers and offer the street a complete image by vision techniques in the dark. In this device, an android app has been created that controls basic car features. [4] Car activation and car gate Locking are the software features (see Fig. 2). To end their procedures all apps needed Bluetooth link. The first step of this software is to link the Bluetooth system to Arduino microcontroller. [4]

The automobile is normally a computer-guided, electronic computing electro-mechanistic unit. The car to monitor via android smartphone APP. In the Android device, they create the remote buttons to monitor the car's motion. In this they use Bluetooth interface and android connectivity. UART will connect the controller with Bluetooth module. The robot activity can be regulated according to instructions obtained from android. The continuous performance, efficiency and repeatability of the robotic device are unparalleled.

Attempting to cross and event identification function used in lane crossings and path obstruction / machine vision. The system was designed to automatically display the signs when the driver has to adjust the lane. During road driving where an obstruction or pedestrian is present, the device can identify and warn against slowing the speed.

IOT and GPS based Smart Cars:

In this method, they have divided the system into two parts first one is User’s system and the second one is Regulatory system. Decision of Smart Car technology has gained massive popularity from users due to expanded usage of IoT in automobile Embedded Systems. Tracking abandoned cars or burglary becomes challenging in urban

cities if the driver is not near the car. This paper offers a description of a way to capture and identify the stolen car or fraudulent acts in the car. The Android framework is built to help the lock / unlock function by utilizing SMS threading technologies with eclipse tools. You will run this software on your entire new Smart Android device. To activate the program, the customer must login using the encrypted username and password.

The program is built to produce Voice commands that alert the consumer by detecting the obtained SMS about the operation of the car as shown in Fig. 3.

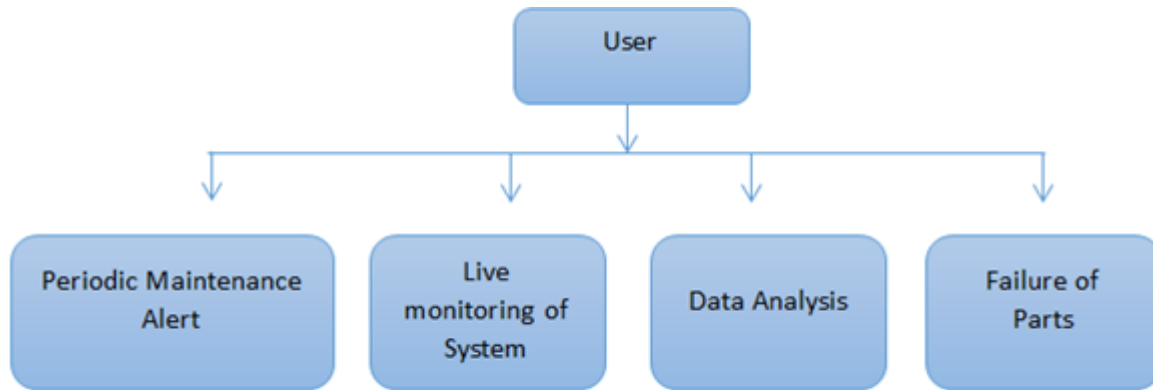


Fig. 3: User’s System

Time Based repairing alert:

This provides daily maintenance updates to the customer and states that the errors found in the system will be remedied.

Live Observing of System:

It performs live related to the current as well as the speed over which the truck runs. The entire trip is filmed and users can see it whenever they want to.

Data Analysis:

The information captured by the detectors would be processed and transmitted to a repository that involves data fusion with GPS system.

Failure of parts:

This is responsible to prevent the failure related to breaks or any other part of system, to prevent these from being alerted by IOT-based intelligent device. The Regulated mechanism responsible for controlling the velocity of automobile founded on location, while travelling it collects fine automatically at next checkpoints prevents honking in silent zone and informs system in case of accident to minimize the damage[5].

Intelligent Smart Car:

"Smart vehicle" is being utilized in the work as a forum to explore smart driving. The centralized controller unit MC9S12DG128, generated by microprocessor free-size, has been used. The CCD sensor gathers smart car path data in which the structure is split into different areas in two sections and other fields. Eventually, the device is given a 35 * 307 set following a migration of the information gathered by the detector to the MC9S12DG128 ATD unit and missing any blank data[6], [7]. A closest advanced control program is designed, using Route detection algorithms, which integrates intelligent vehicle self-tracking. Here paper presents the advanced control analysis of an automated car: extraction of path data, application of self-tracking algorithms, path and vehicle speed regulation. Smart management systems include: closed-loop and open-loop and application development, plus grade I PID management and BangBang controller algorithm. Advanced control systems are also included. And the intelligent management system equipped with smart regulator was tested [8]as shown in Fig. 4.

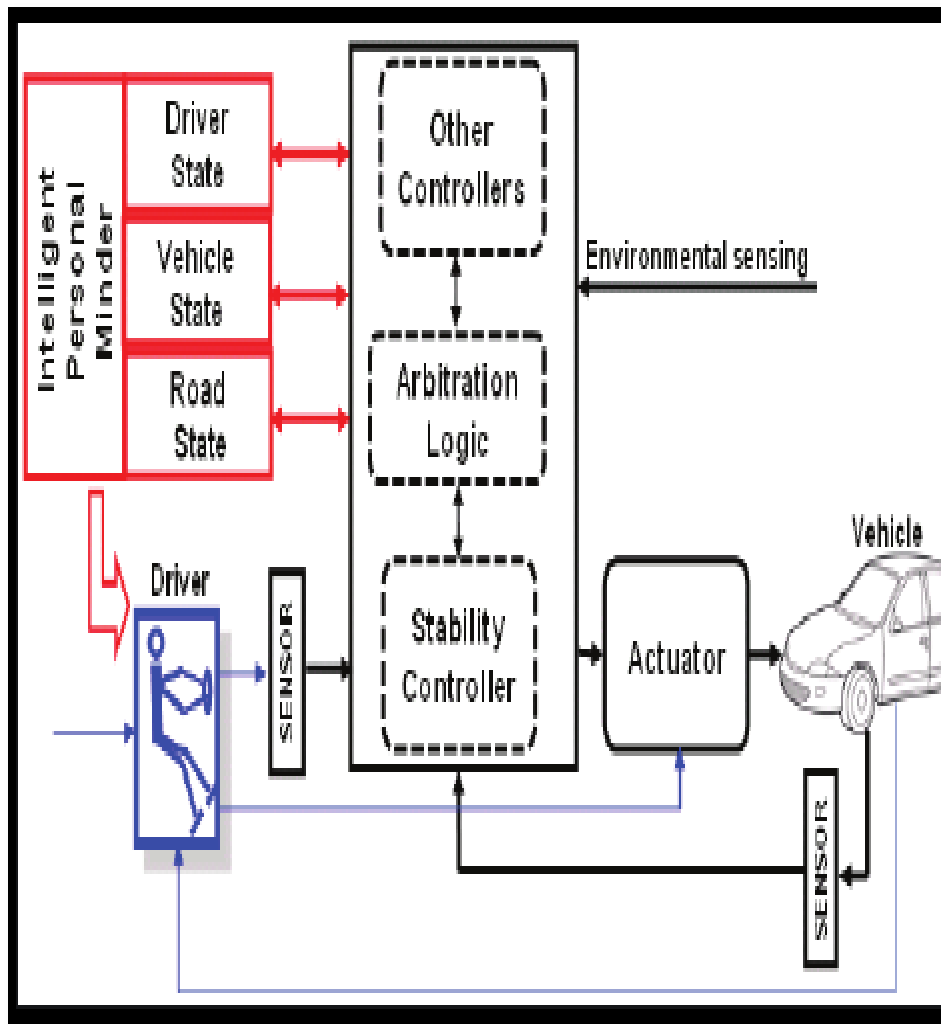


Fig. 4: Flow Diagram of Self-Control Process

Smart Car Parking System:

The paper introduced an innovative parking lot program to help the customer overcome the problem of locating a parking place and to shorten the time to locate the closest parking lot open. It also gives the customer the crowded status of traffic congestion. There are 3 components to build an intelligent car parking device, including the sensor knots for enclosed parking, on-site parking lot and intelligent parking spaces.

The second section has been the cloud, which facilitates the connection among the parking lot and the smartphone app of the operator. The 3rd is the smartphone device program. The third section is the consumer. The program also provides an additional feature that displays the closest parking area[9]. For information exchange among detectors and microprocessor devices working on Bluetooth, wireless data transmission is implemented due to reduced costs. The HTTP protocol establishes contact among consumers and the cloud.

The proposed system gathers regional data input and incorporates data compression and aggregation functions to minimize the volume of information that is being sent to the server[10]. The converted data would then be forwarded to the cloud for analysis and validation utilizing techniques for computer vision shown in Fig.5.

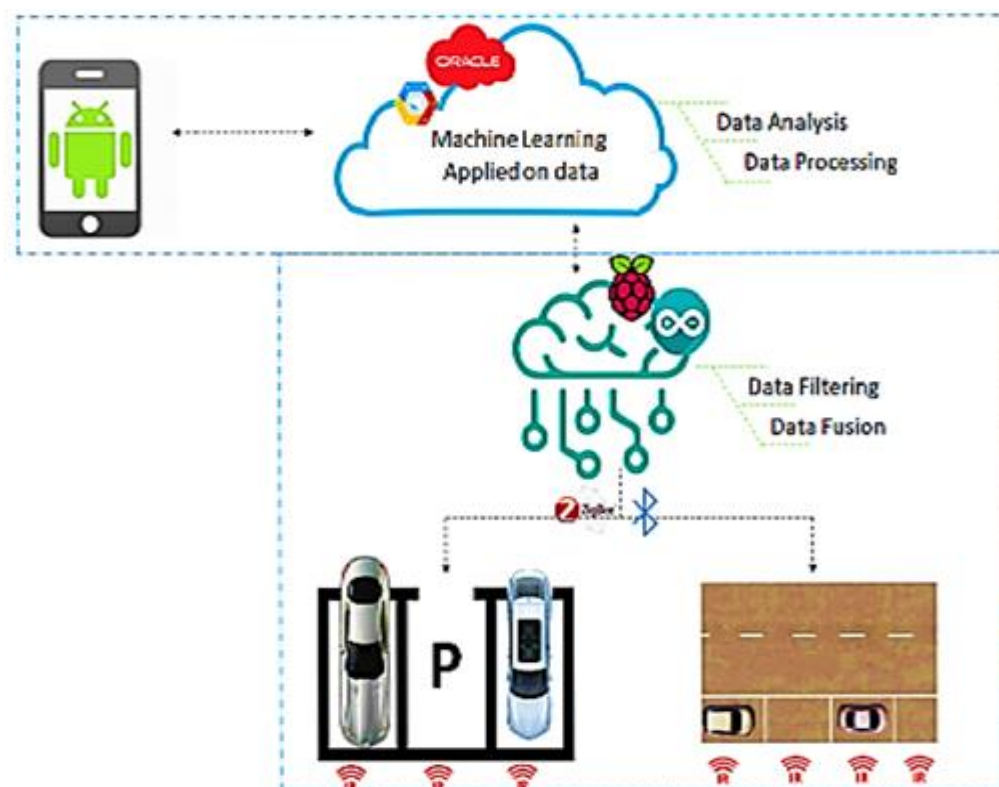


Fig. 5: Smart Parking System

III. CONCLUSION

In this paper, different approaches to build smart car in covered, each method has its own advantages and disadvantages. Android application is used for car automation with the use of sensors to open and close the car doors and auto indicator feature is also introduced while changing the lanes. GPS and IOT are used to track the location as well as free parking space for cars. Every system performs best in their own way, so it is inappropriate to expect one strategy to be superior to the next.

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