

# Digital Smart Roadway Systems using IoT

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**Abstract:** In this project idea only the driver who having proper driving license can access their car and it helps traffic police for making traffic fine using smart phones. At present , the traffic police have more hand written work for making fines for any kind of traffic violation and also it cause bribe due to lack in transparency. Hence, in this project the fine amount is automatically calculated and conformation receipt is print by using Bluetooth printer.

## I. THE PRODUCT IDEA



As per our Indian prime minister Shri Narendra Modi said DIGITAL INDIA , We are going to make Digital vehicles by link driving license, vehicle registration card and vehicle insurance with Aadhar card. Through in our idea ,a person who have driving license can only able to drive the vehicle, without license authority the vehicle engine cannot wake up. This helps to reduce accident. If any accident occur it will insist nearby hospital and also it helps the traffic police with advanced technology.



No driving  
license needed



Safety driving



At the time of accident



Avoid bribe



Now days people met lot of accidents and our people fail to keep their original license any time in their hand.

So to overcome this problem our idea is to design a product that are used by government and people for their secured driving. In people side: Aadhar card number and finger print is necessary to start the engine by opening the key guard wallet. If any accident occurs our system will insist to nearby Hospital, Ambulance and Traffic police and it work on IOT concepts. In government side: A device that used by the traffic police to check whether the person has valid vehicle registration card, driving license and vehicle insurance digitally by using android application.



#### SOFTWARES USED:

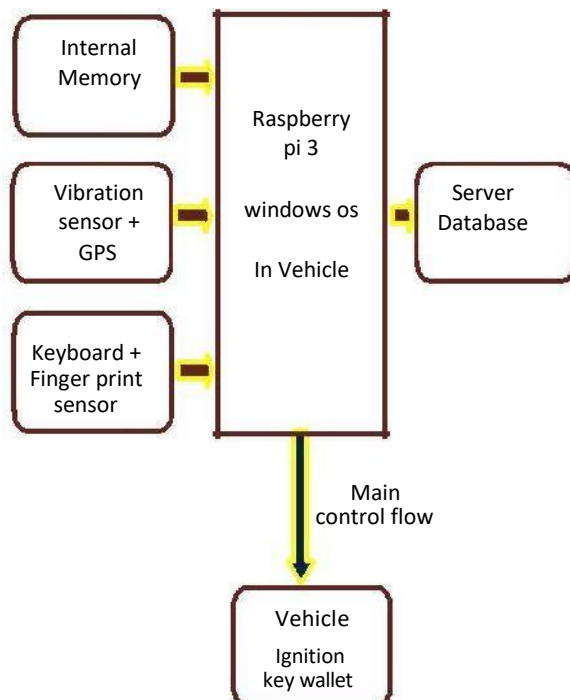
- Eclipse for android application, Python for raspberry pi, Arduino for Arduino uno kit, IOT and
- Database.

#### HARDWARES USED:

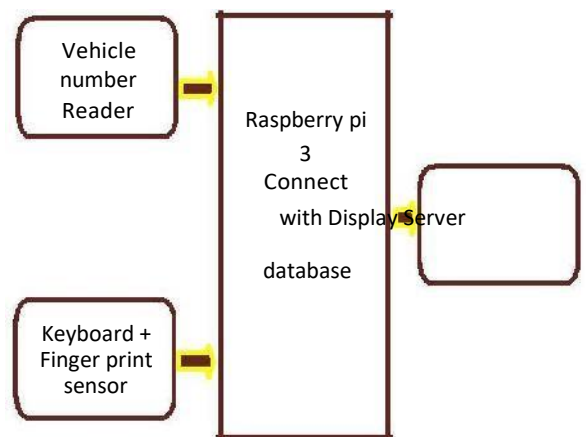
- Finger print sensor with keyboard, Raspberry pi,
- Internal chip memory and Vibration sensor.

#### BLOCK DIAGRAM:

##### A. IN VEHICLES



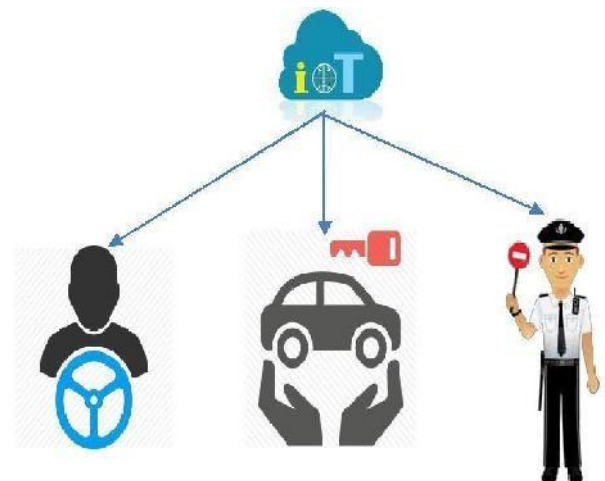
##### B. BY TRAFFIC POLICE: COMPONENT 1



##### C. BY TRAFFIC POLICE: COMPONENT 2



#### METHODOLOGY:



Our system use Internet Of Things [IOT]. After linking driving licence, vehicle RC and insurance with Aadhar card our process will starts.

##### A. IN VEHICLE:

In vehicle the driver must enter Aadhar number of last 4 digits and finger print to unlock key guard for ignition by the methodology of DBMS. For frequent access internal memory also used that are clearly explained in upcoming operation process. Any accident

occur it will quickly inform to the hospital with the methodology of IOT.

### B. BY VEHICLE OWNER:

Vehicle owner can able to see his/her vehicle in which location and it is currently driven by whom along with driving history also be seen through mobile application with the methodology of Android and DBMS.

### C. BY TRAFFIC INSPECTOR:

By using our above shown block diagram inspector can able to capture vehicle number plate by detector or driver Aadhar number to check whether the person has all proper traffic authorities with the methodology of IOT and DBMS.

## II. OPERATION:

### A. IN VEHICLE:

In our project, the device that are kept in vehicle that control the vehicle ignition process.

That device is designed to get Aadhar number and finger print of driver and to make get sync with server for initially once and also for every 3 days.

If the driver has license, vehicle RC and insurance then vehicle engine get wake up.

Then this details get stored in Internal memory for next frequent fast access and sync with server for every 36 hours.

Other than license, out of date of vehicle RC and insurance can renewed through online payment.

In our device there are vibration sensor and GPS are present, if any accident occurs these will detect and sent information along with driver Aadhar details to nearby Ambulance, hospitals and police station.

### B. BY TRAFFIC POLICE:

Either using smart phone [for emergency] or using our above shown device to capture vehicle number plate by detector or driver Aadhar number to check whether the person has all proper traffic authorities.

If the driver does not has any of that authorities, automatically compliant will raised along with penalty money depending on misbehave.

The compliant ticket will open until the money is handover to traffic inspector by the driver, after that the ticket will be closed and that amount details is directly upload to government server.

At the end of that week/month/year the total penalty amount is given to the government by the traffic

inspector.

Through this both traffic police bribe and drives misbehaves can be avoided.

### C. BY VEHICLE OWNER:

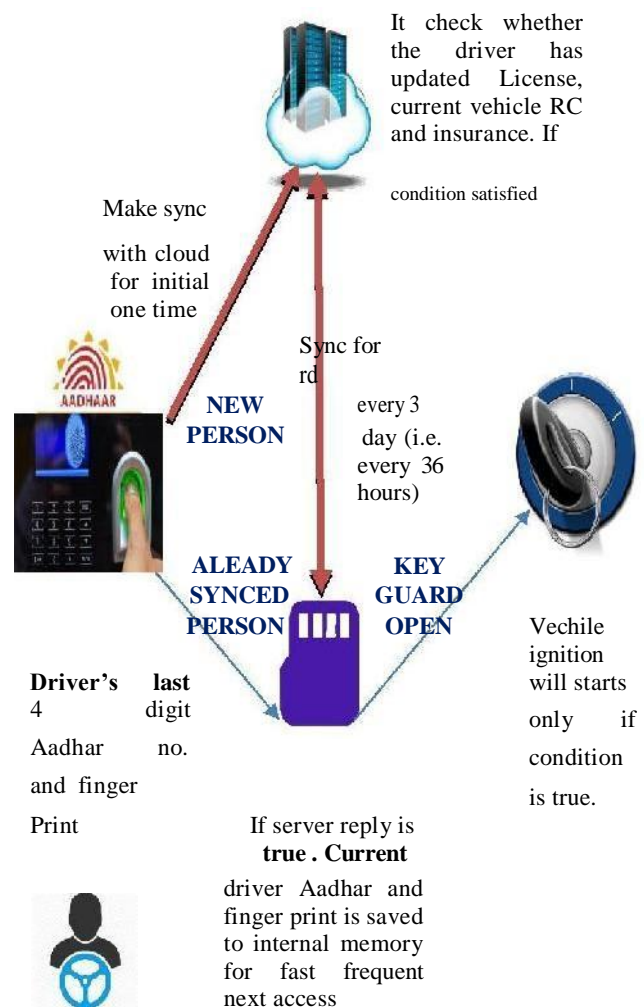
By using mobile application, the vehicle owner can able to know who will driving his/her vehicle along with location at the present time.

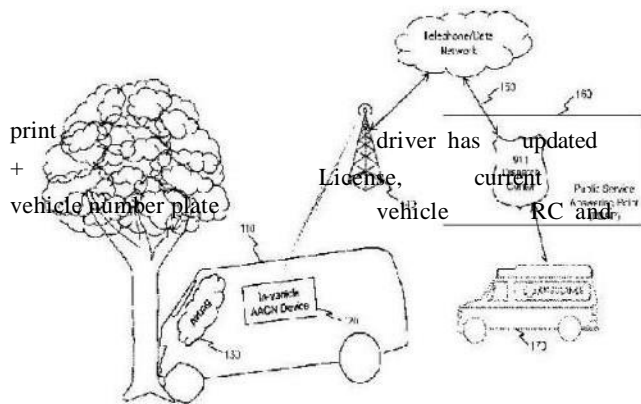
Traffic police bribe can be avoided completely



## III. FLOWCHART:

### A. FOR VEHICLE IGNITION:



**B. AT THE TIME OF ACCIDENT:****C. BY THE VEHICLE OWNER (FOR T BOARD VEHICLE):**

In vehicle the GPS track is fixed then this helps to find the location of the vehicle.  
In vehicle, the driver's aadhar number is upload to the cloud. Then, this data from the cloud is retrieved from the cloud via android application.

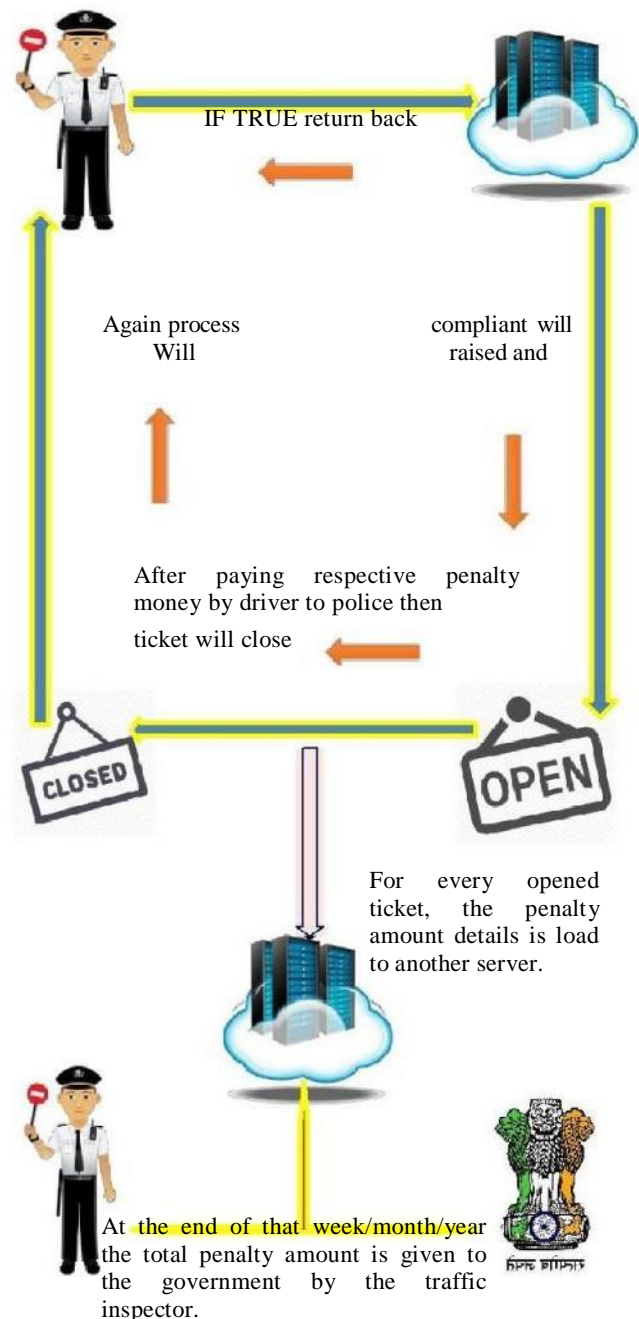
**D. FOR TRAFFIC POLICE:**

Aadhar no. or finger

It check whether the

Reader

insurance.

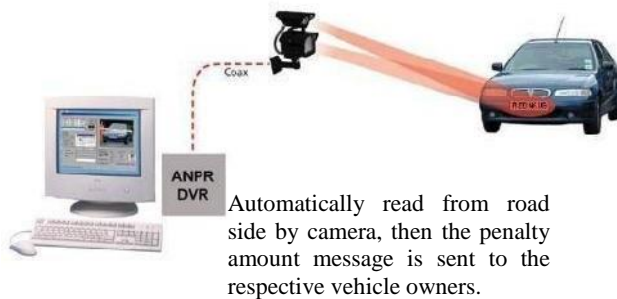


**POSSIBLE INNOVATIONS AT LATER STAGE:**

In upcoming years our team going to design a system , which reduce the work burden of traffic police .

Without the influence of traffic police, the person who does not has proper vehicle RC and Insurance is punished by paying penalty amount automatically.

In that we are going to use mat lab technology.

**REFERENCES:**

- [1] D. Evans, "The Internet of Things: How the Next Evolution of the Internet Is Changing Everything", Apr. 2011, [online] Available: [www.cisco.com/web/about/ac79/docs/innov/IoT\\_IBSG\\_0411\\_FINAL.pdf](http://www.cisco.com/web/about/ac79/docs/innov/IoT_IBSG_0411_FINAL.pdf)
- [2] L. Atzori, A. Iera, G. Morabito, "The Internet of Things: A Survey", *Computer Networks*, vol. 54, no. 15, pp. 2787-2805, 2010, [online] Available: [www.sciencedirect.com/science/article/pii/S1389128610001568](http://www.sciencedirect.com/science/article/pii/S1389128610001568).
- [3] R. Howells, "The Business Case for IoT", June 2015, [online] Available: <http://scn.sap.com/community/business-trends/blog/2015/06/18/the-business-case-for-iot>.
- [4] E. Grigoriev, *Object-Oriented Translation for Programmable Relational System*, 2013b, [online] Available: <http://arxiv.org/abs/1304.2184>.
- [5] E. Grigoriev, *RxO DBMS prototype on-line video*, 2013a.
- [6] M. Atkinson, F. Bancilhon, D. De Witt, K. Dittrich, D. Maier, S. Zdonik, "The Object-Oriented Database System Manifesto", *Proc. 1st International Conference on Deductive and Object-Oriented Databases*, 1990.