SOCIALLY RELATED PROJECTS- COMPUTER SCIENCE & ENGINEERING

DETECTION OF ROAD WITH LESS AIR QUALITY INDEX AND ALERT THE BEST ROUTE

The growth of urban transportation and the raise in the number of cars commuting in megacities, the need for a solution to travel healthy for daily activities becomes a place of importance. The results are obtained by processing the location return the accurate and live AQI from the global API. AQI is an index for reporting air quality and its impact on different group of people. The final paths are provided based on the combination of several parameters such as distance and air quality index. Current navigation systems include options for the quickest paths which is based on distance and traffic and least expensive paths based on fuel costs and tolls. The existing system does not solve the concern of travelling in paths that is less polluted and hence might take a toll on people's health, especially people with lung diseases and senior citizens.

The main aim of a project is to "To provide the shortest and minimally polluted routes based on the air quality index and alert the best routes to the user. "The identified problem statement has its solution comprising of two main modules which are AQI and Google maps API. The maps API is obtained by Google maps SDK for android, directions API and places API. Fetching all these APIs is powered by the Google firebase. The air quality index is obtained again from a website Aqicn.org. All the AQIrelated data are in real-time and up-to-date every minute.

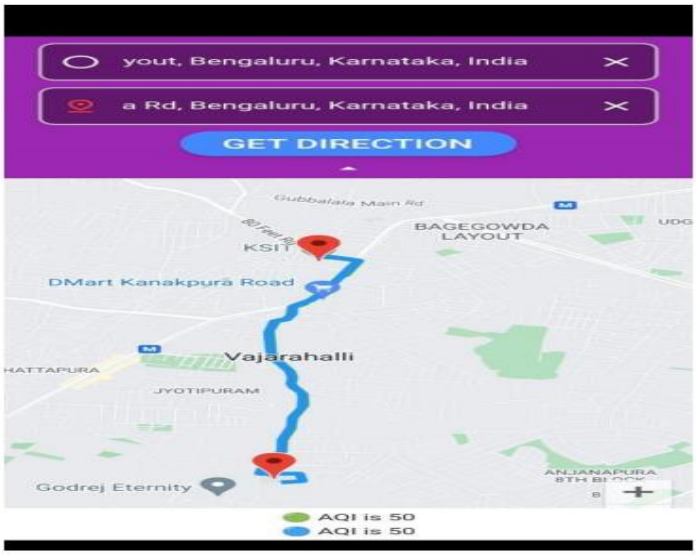

Fig 8.7: Average AQI Of Path

Fig: Routes based on the air quality index

Improved Navigation System and Detection of speed breakers using rider history

The application detects speed breakers and other obstacles on the route and the rider is notified prior to his arrival at the speed breaker. Before running the application, the user must make sure that the location service on their device is turned on. This facilitates smooth functioning of the application. The interface consists of two buttons, namely the 'Add breaker' button and the Start' button. In addition to this, there are two search bars provided. The first search bar usually takes the user's current location as input until specified otherwise. A different initial location can be specified by typing in the search bar. The search bar automatically provides a list of suggestions from which the initial point can be selected. The second search bar is responsible for taking the destination as input. An entry to this field is mandatory unlike the previous search bar. While searching for a destination, several suggestions will drop down in a list format from which one can be chosen. This is implemented using the Google Maps API. The Google Maps API is the sole backbone to the application's interface. It is also responsible for providing the shortest path between the input starting point and the destination.

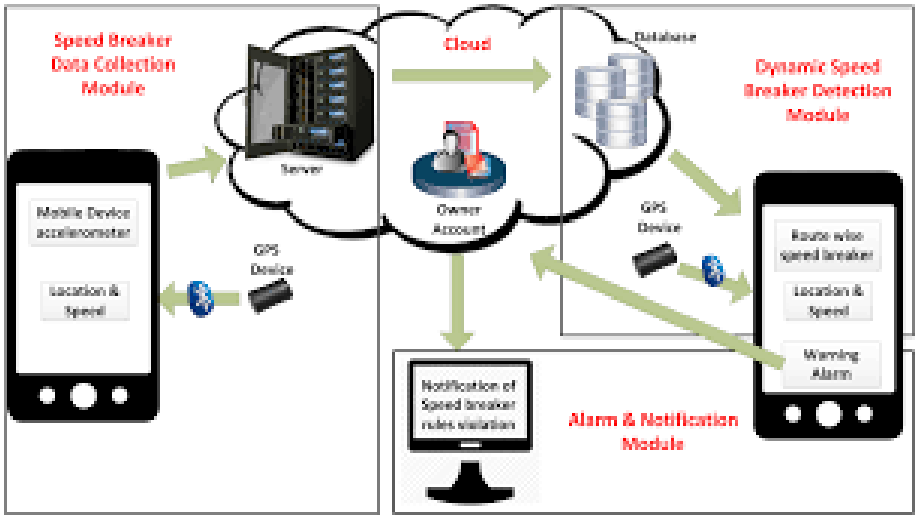

Fig: Detection of speed breakers using rider history

AUTOMATED TOLL MANAGEMENT AND SMART LIGHT SYSTEM

The proposed RFID system uses access card, through which information embedded on the tags are read by RFID readers. It is possible to reduce the need for vehicle owners and toll collection authorities to distribute tickets and collect tolls manually in this system Information on the toll payment can also be easily exchanged between the vehicle owners and toll authorities. As a result, transparency in toll payment can be ensured with reduced manual labor and human errors. Thus, building smart transportation system will become easier. Currently, enormous electric energy is consumed by the street lights. This is a huge waste of energy in the whole world and should be changed. The main aim of smart street light systems is that lights turn on when needed and light turn off when not needed.

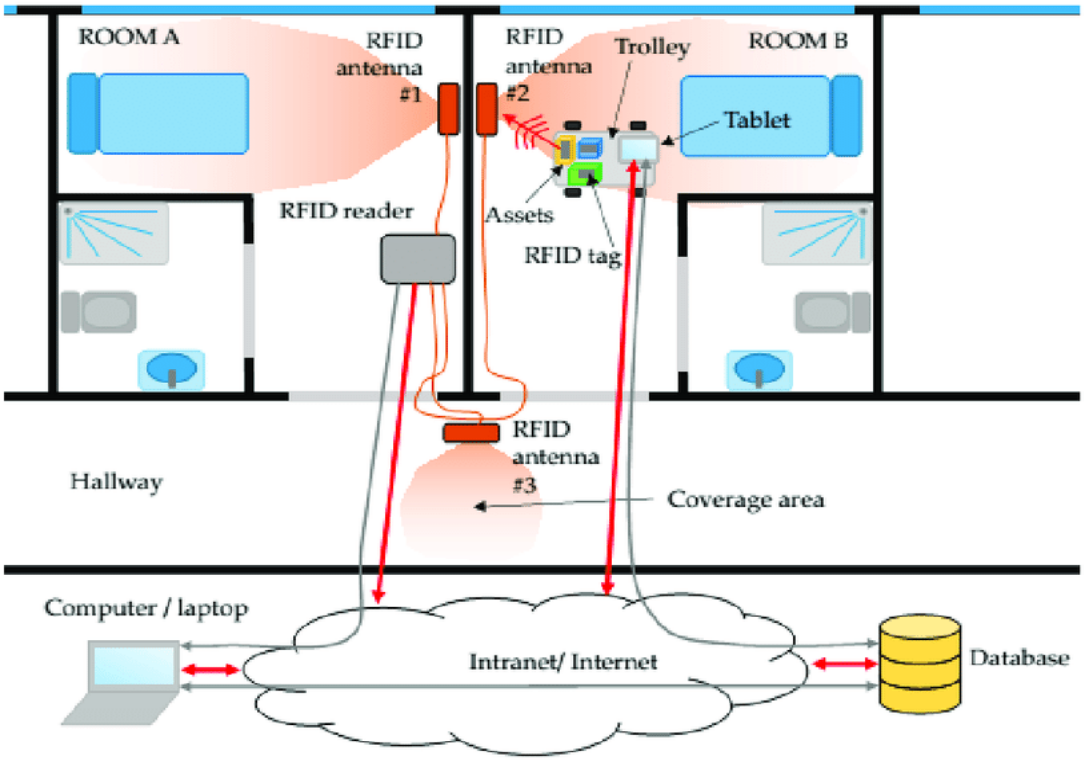

Fig: RFID Based Smart Toll Collection System