CSE202 - DBMS
Traffic Management System

Objective/miniworld: Indian cities have been witnessing a rapid increase in vehicular population, especially personal transport, in the recent past. Given the constraints in increasing roadway widths, this increase in vehicles has resulted in a drastic drop in levels of service on urban roads, with average speeds, in certain cities, dropping to below 10 kmph in peak traffic conditions. The problem is compounded owing to the fact that traffic control mechanisms are typically sub-optimal employing either fixed-time signal control or manual control. In today's context, a road user would also like to have real time information of traffic on alternate routes so that he/she could make an informed choice on the route to take

We have decided to create a multi-purpose traffic management system which serves the general public as a GPS that provides them the best possible route in terms of time and cost. Our project more focus on ease for citizen while travelling. We are abide to provide best services like fuel filling or mechanics requirement or accident reporting in very easiest way. This is simulated type project means one can feel their role when they sign up into this app. One can just inform for fuel on this app. Nearest fuel station will deliver fuel on your path. Privacy is another milestone of this project.

Need of the application:

1. Reduction of travel time.
2. Control the increase in the number of accidents.
3. Proper management of traffic.
4. Easier management of challans through an online system.
5. Information dissemination.

Stakeholders and their queries:

1.citizen

- With the help of their database, they could manage their routes with less traffic.
- As a responsible citizen, they could report any such accident happened in their area.
- Can do transaction online.
- Can order fuel at their desired place
- Can choose desired path
- The general public can view their challans using the app as well

2.Traffic Police

- Can check crowed at their respective node

- Can direct route to all vehicles

3.Hospitals
- Ambulance Record.
- communication (nearest ambulance to site of incidents)

4.Petrol Pump
- Record all orders
- Instruct delivery boy

5. Delivery Boy
- Delivered order at desired place
- Work like citizen

6. Ambulance
- Pick up wounded person from accidental sites
- Work like citizen

Proposed future additions to the application and database to diversify the functionality:

- Can be easily integrated with Artificial Intelligence.
- Make compatible for driverless vehicle.
- Communication among vehicles on road.
- Using more advance algorithms.
- Making more user friendly.

Advantages of our project compared to current systems in place:

- Improves coordination
- Faster response time
- Reduction in conflicts in response
- Reduction in duplicated costs

- More elaborate and time consuming for set up and operation
- Requires agreements for cost sharing and assignment of responsibility
- More time required to set up

ENTITIES, THEIR ATTRIBUTES
& RELATIONSHIPS

- **Citizen**

  Schema: Citizen(ID, name, X,Y, status, contact, fuel, wallet, path)

  Attributes
  1. ID: INT, PRIMARY KEY, NOT NULL
  2. name: VARCHAR(60), NOT NULL
  3. wallet: INTEGER NOT NULL DEFAULT 0
  4. Contact : INT NOT NULL
  5. X: INT NOT NULL
  6. Y: INT NOT NULL
  7. Status: INT NOT NULL
  8. Fuel: INT NOT NULL
  9. path:VARCHAR(100)

- **Traffic_Police**

  Schema: Traffic_police(ID, name, contact, X, Y, wallet)

  Attributes
  1. ID: INT, PRIMARY KEY, NOT NULL
  2. name: VARCHAR(50), NOT NULL
  3. contact: INT, NOT NULL
  4. X: INT NOT NULL
  5. Y: INT NOT NULL
  6. wallet: INTEGER NOT NULL DEFAULT 0

- **Hospital**

  Schema: hospital(ID, X,Y, contact, availBed)

  Attributes

1. ID: INT, PRIMARY KEY, NOT NULL
2. contact: INT, NOT NULL
3. X: INT NOT NULL
4. Y: INT NOT NULL
5. availBed INT, NOT NULL

- **Location**

  Schema: address(X, Y, cost, east, west,south, north)

  Attributes
  1. X: INT, PRIMARY KEY, NOT NULL
  2. Y: INT, PRIMARY KEY, NOT NULL
  3. cost: INT NOT NULL
  4. east: INT NOT NULL
  5. west: INT NOT NULL
  6. south: INT NOT NULL
  7. north: INT NOT NULL

- **Vehicle**

  Schema: vehicle(citizenID, type, document, registration_number)

  Attributes
  1. Citizen_id: INT, NOT NULL FOREIGN KEY REFERENCES CITIZEN(citizen_ID)
  2. type: INT, NOT NULL
  3. Registration number: INT, PRIMARY KEY, NOT NULL
  4. Document: FLOAT NOT NULL DEFAULT 0.0

- **Log In**

  Schema: log_in(id, role, password)

  Attributes:
  1. id: PRIMARY NOT NULL KEY
  2. role: VARCHAR(20), NOT NULL KEY

3. password: VARCHAR(20), NOT NULL KEY

- **Petrol Pump**

  Schema: petrolPump(ID, X,Y, contact)

  Attributes
  1. ID: INT, PRIMARY KEY, NOT NULL
  2. contact: INT, NOT NULL
  3. X: INT NOT NULL
  4. Y: INT NOT NULL

- **Delivery Boy**

  Schema: deliveryBoy(ID, X,Y, contact)

  Attributes
  2. ID: INT, PRIMARY KEY, NOT NULL
  2. contact: INT, NOT NULL
  3. X: INT NOT NULL
  5. Y: INT NOT NULL

Relationships

ENTITY 1	**ENTITY 2**	**RELATION**	**TYPE**
Citizen	Log In	Log in details	One to One
Traffic Police	Log In	Log in details	One to One
Hospital	Log In	Log in details	One to One
Petrol Pump	Log In	Log in details	One to One
Ambulance	Log In	Log in details	One to One
Delivery Boy	Log In	Log in details	One to One

Hospital	Location	Located At	Many to One
vehicle	citizen	Owned by	Many to One
Citizen	Location (Weak)	Current location	Many to Many
Petrol Pump	Location	Located at	Many to One
Traffic Police	Location	Located at	Many to One
Citizen	Hospital	Informed	Many to Many
Citizen	Petrol Pump	Informed	Many to Many
Delivery Boy	Citizen	Is A	One to One
Ambulance	Citizen	Is A	One to One
Hospital	Ambulance	Ordered	One to Many
Petrol Pump	Delivery Boy	Ordered	One to Many