ADAPTIVE ROUTING PREDICTION FOR REGULATING CITY TRAFFIC

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Abstract - *Road congestion because of heavy and irregular traffic is a major problem in big cities. Sometime irregular traffic causes incidents like accidents. This also results in a common problem of 'Traffic Jam'. It is necessary for rescue team to reach at location of incident happens and clear the problem along with necessary medical treatments to victim. A possible way to tackle traffic congestion problem is to convey the traffic information in case of congestion to the preceding traffic officers, adjoining that specific route or in connection with that route. An application will be proposed to handle this problem and give solution. Proposed application will analysis the traffic conditions and judge possible shortest path having least traffic. This application also broadcast notification messages to concern officers as per current traffic analysis.*

*Key Words***: Traffic congestions, broadcast wireless messages, shortest route path, minimizing traveling time, Bottom to up message approach.**

1. INTRODUCTION

Road congestion because of heavy and irregular traffic leads to many problems like an increase of travelling time, incidents like accidents on road, etc. So to tackle all these problems an application is proposed. Proposed application is a technical IT based system that technically deals with this problem efficiently.

It is normally seen that the traffic congestion at one place may affect the traffic on another place. So if the controller officer gets the prior information about the traffic congestion, he can resolve the problem as effectively as possible. The road traffic is based on the dynamic vehicle routing during peak hours of traffic [4]. Managing the real time traffic is emerging the need to develop a system that automatically generates optimal solutions. Day-to-day increasing traffic, accidental issues are acting as bottle necks. The existing system for traffic management is depends upon broadcasting wireless message to all available officers from central office of traffic police management [1]. Hence, it may be possible that unnecessary messages are broadcasted to locations that absolutely have nothing to do with this information. Also sudden increase in traffic may cause difficulties for handling the traffic congestion .Sometimes due to atmospheric condition, the wireless message broadcasting get slows down and messages are not delivered to specified location.

The paper proposes Dynamic Vehicle Navigation System (DVNS). The system is made up of central application server and mobile app for officers. This application will try to give optimal solution for traffic congestion. In proposed system, the road traffic maps get regularly updated with real time traffic. In this system, the real time traffic junctions are mapped as nodes and the traffic rate between the signals is considered as the link weight for the selection of routes from source to destination. The selection of the route depends on various parameters such as traffic rate, speed of the vehicle, shortest path etc [3]. To handle the problem of traffic congestion, different notification messages are broadcast by central application server to concern officers as per traffic situation in real time.

2. LITERATURE SURVEY

The existing system for traffic management is depends upon broadcasting wireless message to all available officers from central office of traffic police management. The work flow of system is as mentioned below;

- If the traffic congestion occurs, an authorized individual will inform to the police control room.
- The police control room will broadcast this information to all the traffic officers who are using walky-talky.
- The repeater act as intermediate while sending information from police control room to traffic officers.
- The repeater uses frequency range of 163 Hz for sending message at transmitter side and at receiver side it receives message at frequency range of 153 Hz.
- When the message gets broadcast to all the traffic officers, the officer appointed for that area visits the location and solves the traffic congestion problem.
- After solving traffic congestion the traffic officer informs current status of traffic to police control room.
- The traffic officer informs to police control room in reverse process by taking repeater as intermediate.

The updated information will get broadcast to all traffic officers.

3. PROBLEM FORMULATION

3.1 Conclusion from Literature Survey:

From above discussion in literature survey is has been concluded that in current system it may be possible that unnecessary messages are broadcasted to locations that absolutely have nothing to do with this information. Also, the sudden increase in traffic may cause difficulties for handling the traffic congestion. The wireless system is depends upon waves travel through environment which are weak as compared to frequencies used for mobile. Also the life span of these waves is shorter. Hence, broadcast messages get limitation of distance. Also, sometimes due to atmospheric condition, the repeater performance slows down and messages are not delivered to specified location.
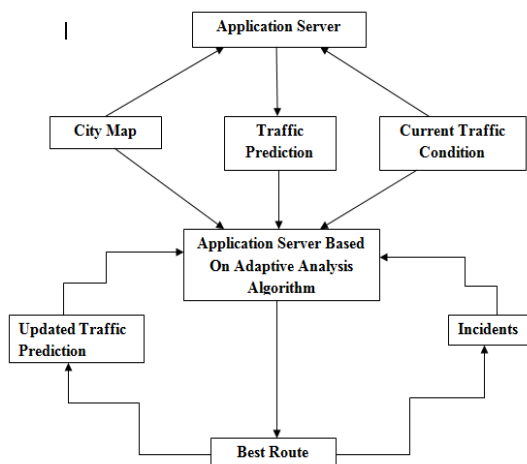
4. METHODOLOGY

Fig-1: Proposed System Architecture

The above figure shows the setup of proposed system.
- The description for the above figure is given below.
- Application Server receives data which indicates status of traffic.
- In accordance with the traffic status, modifications are done in database.
- Depending on the current status of database server, Application Server will create auto update map.
- Application server sends notification message to preceding traffic officer.
- The Application Server takes the City map and predicts the current traffic condition.
- The current traffic status is always updated on Application Server.
- The Application Server chooses the best route from the available routes using the Adaptive Analysis Algorithm. And also updates the best route on the Application Server.

4.1 Necessity of proposed system:

The current traffic management system facing problems like irrelevant message broadcasting time consuming process to handling traffic congestion etc**.** Hence, to tackle with this problem technically, proposed system becomes necessary. If there is a heavy traffic on a particular route, then the application server will send a notification or alert message to the preceding officer adjoining or in connection with that route. Having prior knowledge regarding the traffic can help him to manage traffic more easily.

5. CONCLUSION

The proposed system will try efficiently to tackle the problem of traffic congestion. Also the proposed system will answer the problem of unnecessary broadcasting of wireless messages to non-relevant officer's .In proposed system central application server provided notification only for required officer. Hence, irrelevant message forwarding will be avoided. Planned solutions are provided to handle traffic congestion in form of shortest route path analyzed from real time traffic condition. The broadcasting message sending occurs in bottom-up-approach. The central application designed in such way that it provides priority to emergency services.

6. REFERENCES

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