

Smart Guiding Vehicular System with Sensors and Wireless Technology

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Abstract: In many countries traffic congestion is a big problem. The main reason of traffic congestion is due to the more cars on road which lead to many obstacles for the emergency vehicles like ambulance, military vehicle and fire service vehicles. In the manner of this traffic congestion, I have introduced a method by the help of IR sensor & wireless technology for the emergency vehicles to reach the destination without the part of traffic jam.

Index terms: IR sensor, IR distance reader, MSC server, Geo-Stationary Satellite.

I. INTRODUCTION

Traffic congestion [1] is a condition on road network that occur as use increase, and is characterized by slower speeds, longer trip times and increased vehicular queuing [2]. The general view of congestion is shown in figure.1. Traffic congestion occurs when a volume of traffic generates demand for space greater than the available road capacity. There are many circumstances which cause congestion, most of them reduce the capacity of road at the given point or increase the number of vehicles required for the given vehicle of people.



Fig.1: Traffic Congestion of City Road

Due to this traffic congestion is leading to many negative effects such as wasting time of motorist and passengers delay which result in late arrival for employment, meetings and education, resulting in lost disciplinary action or business. Emergency vehicle travelling to their destination where they are urgently needed can't reach on time. The goal of this paper is to propose a model that will help the drivers to reach the destination without be the part of traffic congestion

Blueprint of Smart Guiding System

An ongoing concern in the present scenario regarding the traffic congestion in the metropolitan city and big cities. The same trend are we all have witnessing in the news for example-the steps taken to sort out the emergency problems with the odd/even formula in Delhi which havocally challenged in the court and failed. Generalized view of smart guiding system shown in figure.2. Here, I am presenting a model to overcome this concern of congestion during emergency services for example-ambulance, fire brigade & armed vehicles. As shown in figure.2, the all four squares as nodes termed as

1,2,3.....16 with the distance given between each node in kilometers and each node is equipped with the CCTV camera[3] and the IR sensors[4]and IR distance reader [5].

Now the vehicle owner desired to reach its possible destination in the minimum possible time, let's see from 1-16 nodes. The subject shall view the congestion status on the screen placed in his/her vehicle or seek for the alternative routes to reached the destination, the program app fixed in the dash board of the vehicle should calculate this working phenomena. The same on the basis of less congested nodes and provide information to reach earliest by placing the information (time) both the prescribed and alternative route.

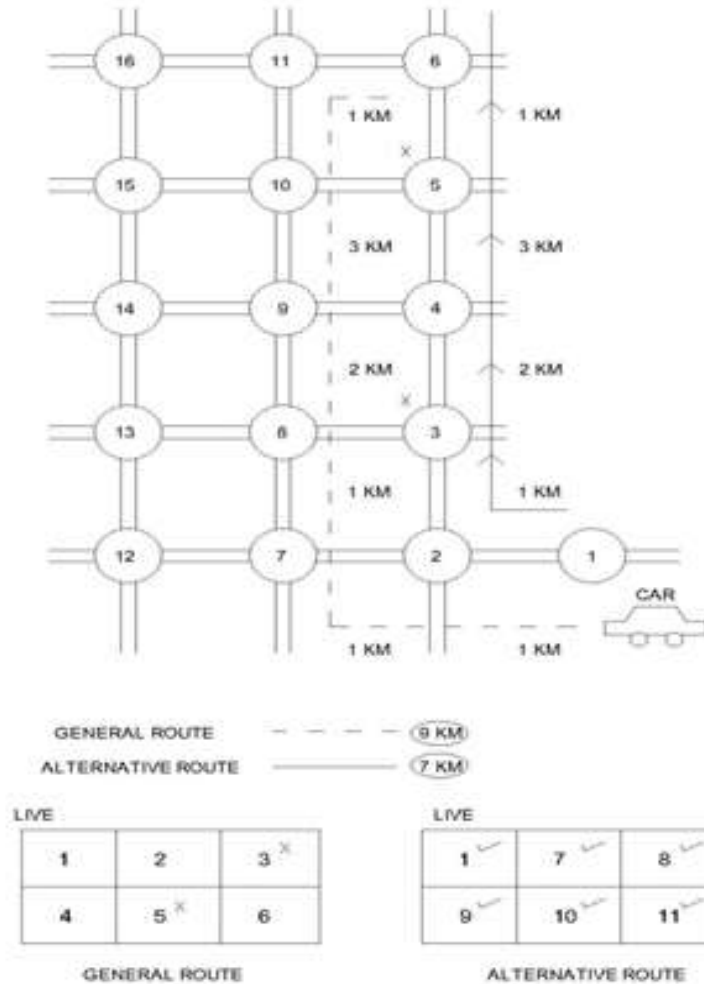


Fig.2: Generalized view of smart guiding system

II. METHODOLOGY

The general working of SGS (smart guiding system) is shown in figure.3. The CCTV camera placed on the respective squares or node that is connected to the MSC server which in turned connected to the Geo-stationary satellite [6]. The MSC server send the signal and relevant data to the satellite, this data is received by GPS vehicle navigation [7] to the user which is using the vehicle navigator device.

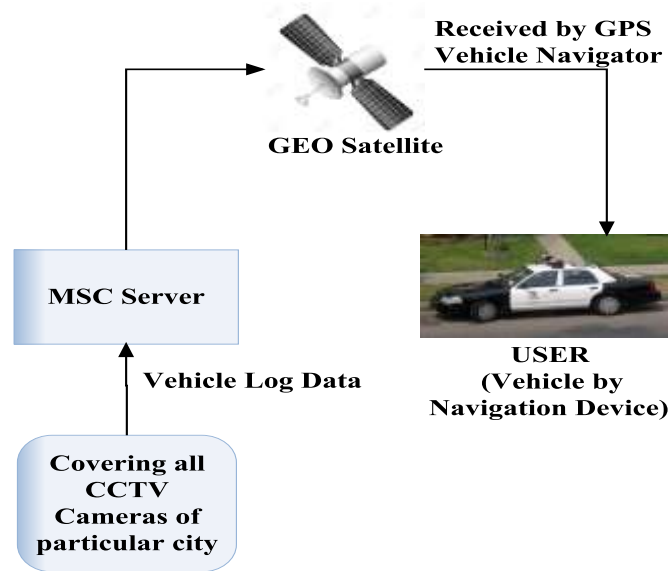


Fig.3: General working of SGS

III. ALGORITHM OF SGS

Algorithm of SGS is shown in figure 4. To start with the sender end SGS which is equipped with the CCTV camera, IR sensor and IR distance reader combination of these three can be forced as vehicle log system. The MSI server collects all the footage and distributes the information to the satellite.

The satellite is connected to the receiver end SGS which is connected to user to give the information about sources and destination.

- A. In this step it uses the GPS vehicular apps to give live image of all check points and circles between source and destination.
- B. In this step it uses the sorting between congestion and freeways which give the alternative live image of the check points and circles of sources and destination.
- C. In this step it will generate the remaining deviation route in kilometers by the help of IR distance reader.

IV. ADVANTAGES

1. Government and emergency vehicles will arrived on time(time saving)
2. Reduce accidents
3. Guide manual for congestion
4. Make night driving safe with the help of IR sensor

V. DISADVANTAGE

1. Fuel consumption is more because of actual distance
2. Driver should be skilled
3. Connectivity of MSC sever should be strong
4. Expensive

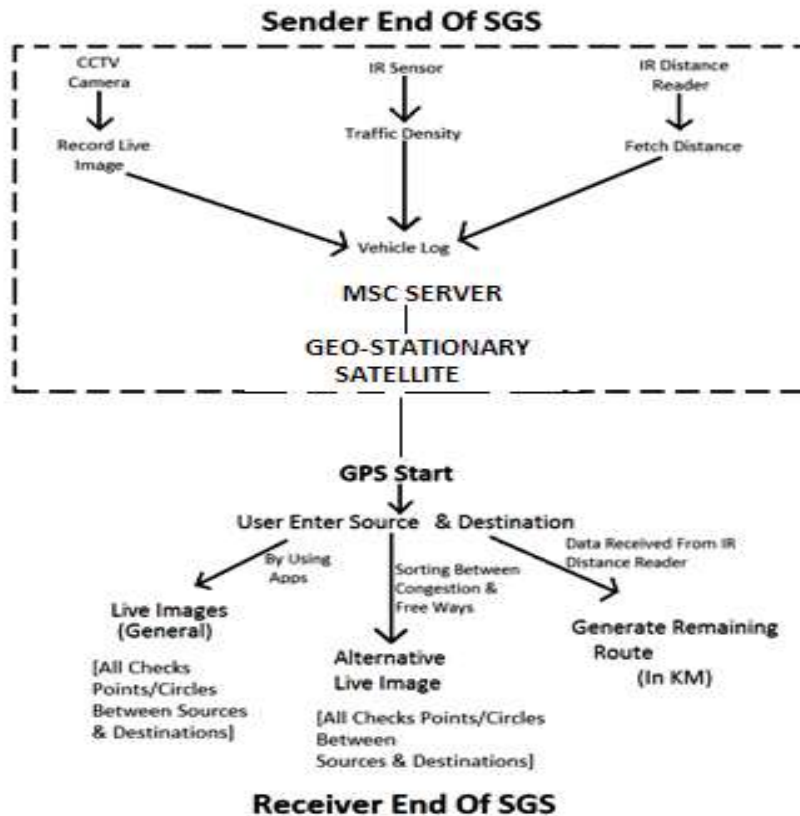


Fig. 4: Algorithm of SGS

CONCLUSION

Due to increase in traffic congestion problems, this model will help out the emergency vehicles to reach the destination on time without any delay of traffic jams. It is a future generation guiding system with advance technology in it.

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