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Research Article

TRAFFIC LEVEL CONVEYER USING – RSS FEED

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Abstract:

In today's world the traffic becomes very big issue so there are many accidents taking place. To make travel safer we are going to use Intelligent Transportation System (ITS). ITS provides us several easier and technical features but still it has to be improved in some of the areas. The concepts of wireless communication are used which is the mainstay for vehicular ad-hoc network, spatial data visualization and Rich Site Summary (RSS) feeds. This proposal overviews the concept of RSS feeds through which the Geo Visualized data are flooded to the road takers. So that the users can know about the present traffic level in that locality.

Keywords: ITS, Long range Sensor Visualization, RSS, Flooding, Data Processing Center.

Introduction: In today's world the traffic is the main issue for the traveler to make a travel easier and safer introducing a traffic management system which consist of a website with Rich Site Summary feed and a geo visualized map.ITS is the wide area which deals with the traffic management and Road safety. The traffic level alerts will be given to the subscribed road takers through Rich Site Summary(RSS) feeds. The traffic level will be gathered from the wireless sensor. The data are collected from the vehicle and Road Side Unit (RSU) using the wireless sensor and the data collected from the wireless sensor will be sent to the Data Processing Center (DPC). In DPC the data areProcessed and converted into visual data and final output from the Data Processing Center is sent to the subscribed users through the RSS feeds.

Rich Site Summary Feeds: RSS feeds is the technique used for delivering the frequently updating web page contents. Many websites uses this technique for delivering their updates to the frequently used web users. RSS feeds will be built

with the XML file and it will be inherited to the website for delivering the updates to the subscribed users. To update the traffic level of the current location for the user RSS feeds is the used to give the alert to the user.

Geo Visualization:

Geo visualization is the modern cartography technology which entitles several representations of larger datasets. Difference between the map productions and cartography with spatial data visualization is it uses interactive digital environment. In olden approaches maps are the only way to interface between users and mapmakers. This situation makes it impossible to satisfy the needs of users. But Geo visualization uses visual representation for understanding physical environment and humans. Geo visualization technique is also used to create geo visual maps by using photos taken from a locality. Visual maps helps us to predict forthcoming environmental changes. Using this visual map density of the traffic can be delivered to the users.

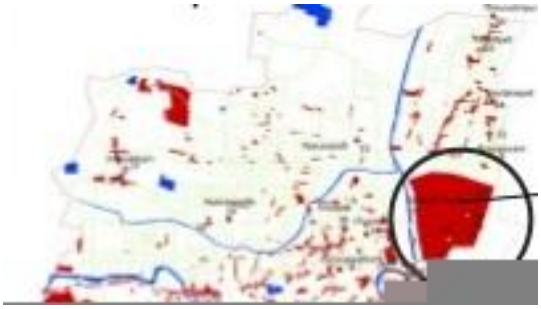

Fig1: sample geo visualized map

Dataset Collection:

In this traffic management system the environment information is gathered in three ways. Firstly, the data are gathered using Radio Frequency identifier tags, the RFID Tags are sensor which is set uped as a Road Side Unit (RSU). The RFID senses the vehicles id and updates the vehicle entry in its database. The RFID sensor starts sensing the signals only when the vehicle is in on condition near the range of Road Side Units. This can also be done by manually placing RFID tags near to the sensors, if the vehicles onboard RFID is not installed.

Table 1: Sample data received from RFID Reader.

Area Code	Latitude	Longitude	GPS Coordinates	RFID Count	Time
MA001-MAS	13.081604	80.275587	13° 4' 53.7744" N 80° 16' 32.1132" E	120	10.00 Am
MA002-	13.072107	80.202250	13° 4' 19.5852" N 80° 12' 8.1000" E	78	

CMBT					
MA0018-MS	13.079127	80.256557	13° 4' 44.8572" N 80° 15' 23.6052" E	55	
MA0021-PR	13.034739	80.155963	13° 2' 5.0604" N 80° 9' 21.4668" E	87	
MA010-MAM	13.035042	80.230244	13° 2' 6.1512" N 80° 13' 48.8784" E	45	
MA045-GUY	13.012232	80.220978	13° 0' 44.0352" N 80° 13' 15.5208" E	98	
MA001-MAS	13.081604	80.275587	13° 4' 53.7744" N 80° 16' 32.1132" E	155	11.00 Am
MA002-CMBT	13.072107	80.202250	13° 4' 19.5852" N 80° 12' 8.1000" E	140	
MA0018-MS	13.079127	80.256557	13° 4' 44.8572" N 80° 15' 23.6052" E	70	
MA0021-PR	13.034739	80.155963	13° 2' 5.0604" N 80° 9' 21.4668" E	90	
MA010-MAM	13.035042	80.230244	13° 2' 6.1512" N 80° 13' 48.8784" E	130	
MA045-GUY	13.012232	80.220978	13° 0' 44.0352" N 80° 13' 15.5208" E	110	

The second way of gathering data is by using the Sound sensors. It is also placed in the Road Side Units, it will start update the database once the threshold level of sound sensor is triggered. In our case the threshold level set for noise sensor is between 80 and 100 dB based on environment noise range. When the sound sensor identifies the excess noise then, it automatically triggered and starts to update its database (Table: 2) stated as high traffic density.

Table 2: Sample data collected from Noise Sensors.

Area Code	Latitude	Longitude	GPS Coordinates	Values (dB)	Time
MA001-MAS	13.081604	80.275587	13° 4' 53.7744" N 80° 16' 32.1132" E	160	10.00 Am
MA002-	13.072107	80.202250	13° 4' 19.5852" N 80° 12' 8.1000" E	110	

CMBT					
MA0018-MS	13.079127	80.256557	13° 4' 44.8572" N 80° 15' 23.6052" E	80	
MA0021-PR	13.034739	80.155963	13° 2' 5.0604" N 80° 9' 21.4668" E	125	
MA045-GUY	13.012232	80.220978	13° 0' 44.0352" N 80° 13' 15.5208" E	68	
MA010-MAM	13.035042	80.230244	13° 2' 6.1512" N 80° 13' 48.8784" E	134	
MA001-MAS	13.081604	80.275587	13° 4' 53.7744" N 80° 16' 32.1132" E	180	11.00 Am
MA002-CMBT	13.072107	80.202250	13° 4' 19.5852" N 80° 12' 8.1000" E	171	
MA0018-MS	13.079127	80.256557	13° 4' 44.8572" N 80° 15' 23.6052" E	105	
MA0021-PR	13.034739	80.155963	13° 2' 5.0604" N 80° 9' 21.4668" E	128	
MA045-GUY	13.012232	80.220978	13° 0' 44.0352" N 80° 13' 15.5208" E	168	
MA010-MAM	13.035042	80.230244	13° 2' 6.1512" N 80° 13' 48.8784" E	147	

In third method the data are collected by capturing the vehicle by the using of traffic cameras. Datasets are collected in the form of image files taken periodically. The actual process starts only when the datasets collected by the above said methods reaches Data Processing Center (DPC).

Area Code	**Latitude**	**Longitude**	**GPS Coordinates**
MA0018-MS	13.079127	80.256557	13° 4' 44.8572" N 80° 15' 23.6052" E

06.00 AM 10.00 AM 05.00 PM

Fig 2: Traffic monitoring CCTV captured images.

Data Processing Center (DPC):

The data collected from the three methods of dataset collections will be sent to the DataProcessing Center using both wired and wireless mode. The wired method is used for short range communication and wireless sensor is used for long range communication with the Data Processing Center. The datasets are analyzed by processing the data received by the Data Processing Units. The first step of Data Processing Center starts with a proposed authentication algorithm, which compares the received data with the database. Once the locality is validated with existing database field, thevalues of RFID and dB fields are extracted for processing.

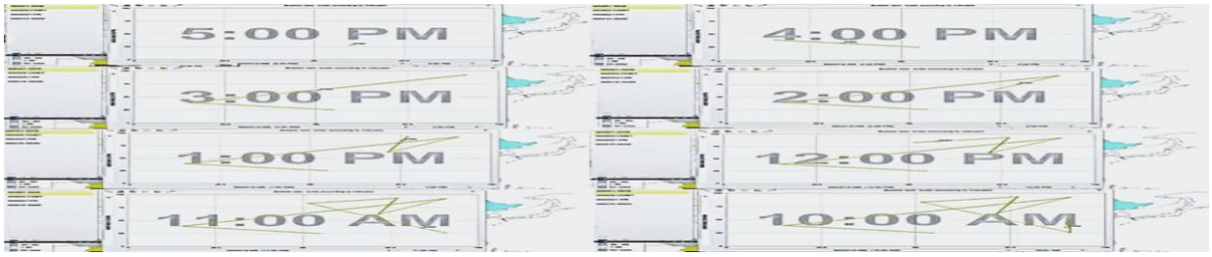

Fig 3: Time to Time Traffic Comparison between MA0018-MS (x-axis) and MA001-MAS (y-axis).

The difference between the two methodsis the range of color axis. The range of dB values received form noise sensors can be measured because the threshold level for a sound sensor will be 80 dB and the threshold level for the Radio Frequency Identifier count value is calculated based on total area covered by a particular preprogrammed RFID sensor. If the threshold level of that sensorreaches, then the necessary action will be taken in the next step.

The second step is responsible for producing geo visualized outputs. Geo visualized output can be produced using visualization toolslike ArcGIS or statplanet tools. Thesetools will helps us to produce the geo visual images of the received data.

The next step of the Data Processing Center starts with updating the visual changes in the website which is linked with RSS feed. To reach the usersthe images with the file format of .png.jpg, .jpeg, .bmp are uploaded in the website.

(a) (b)

Fig 3: Traffic updates of MA001-MAS (a) and MA010-MAM (b).

Destination Reach ability and Traffic Management:

In this phase the uploaded data in the website will reach the subscribers through existing internet connection. In this type the subscribed users those who are having theinternetaccess can get the regular updates in the form the RSS feeds. Traffic Management is done by checking the regular updates and by comparing the geo visualized imagesof a particular area that are uploaded the website regularly will helps us to predict the traffic conditions earlier.

Conclusion:

In this paper we proposed a traffic management system which is based on the wireless sensors and RSS feeds which give alertsto the road takers about the present traffic level via the hand held devices like mobile phones directly. This can be enhanced by training the traffic officials with the help of collected datasets which will helps us to predict the traffic situations earlier and divert the vehicles to alternate routes temporarily or this may help to consider a permanent solution for frequent traffic jamming areas.

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