

An Message Oriented Security Service in Vehicular Ad-Hoc Networks

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Abstract - Vehicular Ad-Hoc Network is the Network Which is used to provide the communication between the vehicles Improving the security between the vehicles by having the communication between the vehicles. This communication is possible if the two vehicles are travelling on the same direction and also the vehicles should within the range to communicate with each other vehicles. The admin will calculate the distance which was given by the user. The sensor will sense the vehicles information and stores the information about the vehicles in the database. The System will send the information about the vehicle to the corresponding users by calculating the numerical calculations. The result shows that the security protection to the users in the real time to avoid accidents on the road.

Keywords — Ad-Hoc Networks, VANETS, MANETS, and Network Security .

I. INTRODUCTION

Ad-Hoc network is a decentralized type of wireless network. The network is Ad-Hoc because it does not rely on a pre existing infrastructure, such as routers in wired networks. Ad-Hoc networks are used to send the information by using wireless network. **Vehicular ad hoc networks (VANETs)** are created by applying the principles of mobile Ad-hoc Networks.(MANETs). The spontaneous creation of a wireless network for data exchange to the domain of vehicles is called Vehicular Ad-Hoc Networks.

VANET It is special form of MANET and it provides Vehicle - to - vehicle communications Vehicle-to-infrastructure communications. We propose a formalized methodology to especially quantify the security level in the real time. VANET promises safer roads, assures less or no accidents. The result shows that the proposed frame work is capable of capturing the real-time security level adaptively to the Vehicular context and provides a dependable decision basis to security protection. VANETs support a wide range of

applications from simple one hop information dissemination of, e.g., cooperative awareness messages (CAMs) to multi-hop dissemination of messages over vast distances. Most of the concerns of interest to mobile Ad-hoc networks (MANETs) are of interest in VANETS. Rather than moving at random, vehicles tend to move in an organized fashion. The interactions with roadside equipment can likewise be characterized fairly accurately. And finally, most vehicles are restricted in their range of motion.

In this application the user will provide his full details while the user when the user is login. The system will check the details of the user and the user will provide the range value from the front-end. The system will calculate the range value at back-end and provides the message to the user whether the user is in the range or out of range. In this application we are using the sensors and the Road side unit (RSU) for having the communication from one vehicle to the other vehicles. By having the communication from one vehicle to the other vehicles by using these sensors easily we can avoid the accidents those are happening on the road.

II. RELATED WORK

The proposed system consists of having the communications between the vehicles and the communication between the vehicles is possible by having the sensors on the Road Side Unit (RSU). By these Sensors on the road these sensors will sense the vehicles information and Send these Vehicles information to all the vehicles whose vehicles are in the sensors range. By sending the information to all the vehicles we can avoid the accidents.

A. Advantages

- i. **Avoid Accidents on the road:** The main advantage of the proposed system is to avoid accidents on the road by having the communication between the vehicles.
- ii. **Providing the information to all the vehicles:** This application mainly focuses on providing the communication between the vehicles about the vehicles which are nearer.
- iii. **Time Saving:** By having the communication between the vehicles. The users can easily understand the problem and the user saves the time
- iv. **Less Computation:** In this proposed system there will not be any computation like occurring of accidents on the road.
- v. **High Efficiency:** In this system the Efficiency of the Vehicles will be more and the vehicles will be communicating to the vehicles and the infrastructure will be high. By having the communication to each other we can easily avoid the accidents occurring on the road.
- vi. **High Security:** In this application there will be a high security to the vehicles because of communicating to the vehicles and having the information to the vehicles before itself before having an accident occurs.

B. System Behavior

Our system observes 2 key roles:

- i. **User** - The user will register the vehicles details and will check the vehicles around his range by giving his range to the admin. The admin will calculate the range entered by the user and checks with the sensors range value and then if the vehicle is in the sensors range then the admin will send to the around the users that the particular vehicles id is in the sensors range or not. If the sensors senses the vehicles information then there is an communication from one vehicle to the another vehicles.

- ii. **Admin** - In the admin phase the admin will store all the vehicles registration forms and they will store them in the databases. If the user gives the information to the admin then the admin will calculate the results in the databases .If the user wants to know the details then the user will enter must enter the range then the Admin will check the vehicles range and then admin will send the Message to the remaining vehicles which are in the same Range.

C. Methodology

In this methodology we are implementing the problems that we are to avoid accidents on the road. By the Existing system there is no communication from one vehicle to other vehicles. In this proposed system there is a communication from one vehicle to the another vehicle to avoid accidents on the road. The user will register the vehicles details and then user checks vehicle whether the vehicle is in the range or not.

In this application the user must register the details about the vehicles and store the details about the vehicles in the admin data base. The admin will calculate the distance between the vehicles and send this information about the vehicles which are in the sensors range.

III. ARCHITECTURE MODEL

- i. **User Operation** --The user will register the details about the vehicles and the details of the vehicles will be stored in the admin database.
- ii. **Calculating the distance between the vehicles** -- The Calculation of distance between the vehicles is done by using the sensors(RSU). The sensor will set the distance if the vehicle is in distance range and it is stored in database. The range will be fixed.

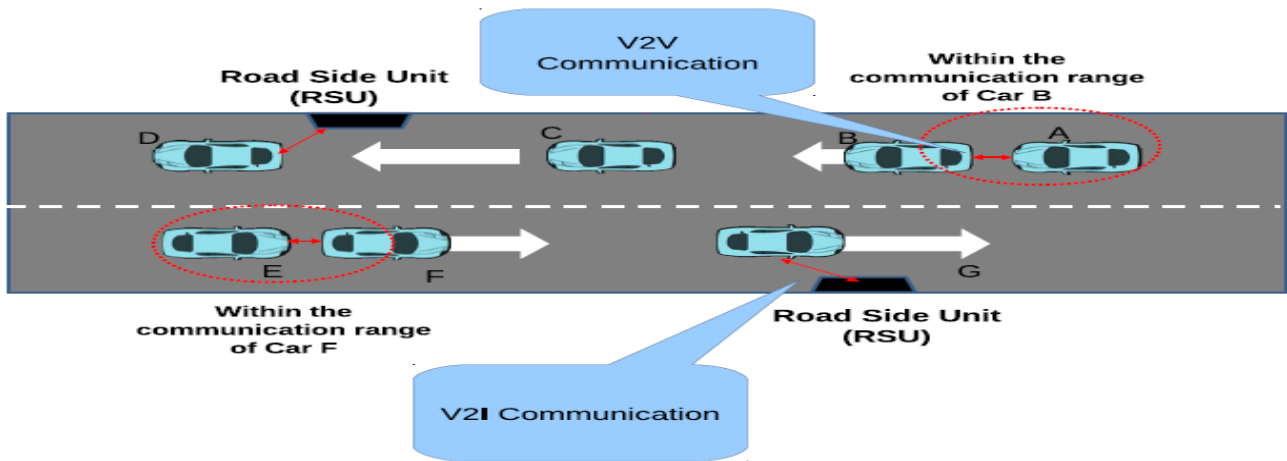


Figure 3.1(a) - System Architecture design

- iii. **Sending the messages to the user:** At the time of storing the distance in database the system will send the message to vehicles if vehicles are maintaining the range.

In this application we are using Jsp for the front for creation of user interfaces on which the user interacts with the admin. MySQL is used as the back end database where the all the data which is collected from the users are stored. By using both Jsp and MySQL we are creating this application where the user can give the details according to that particular issue and all the data is stored in Mysql server from where the calculations are done and the result is being produced.

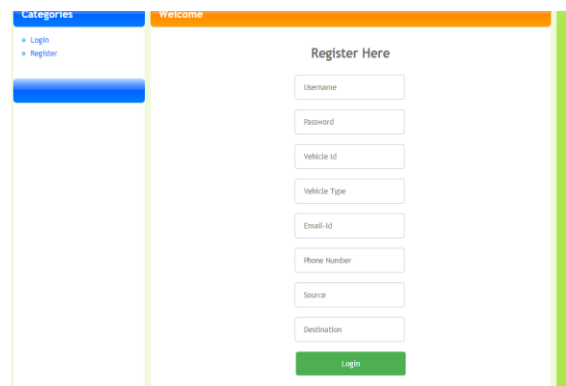


Figure 4.2- Registration page

IV. EXPERIMENTAL RESULTS

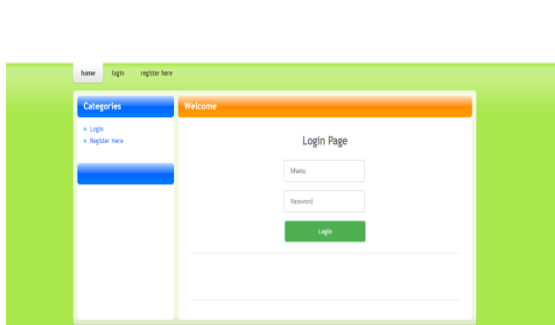


Figure 4.1 -All user details and login page

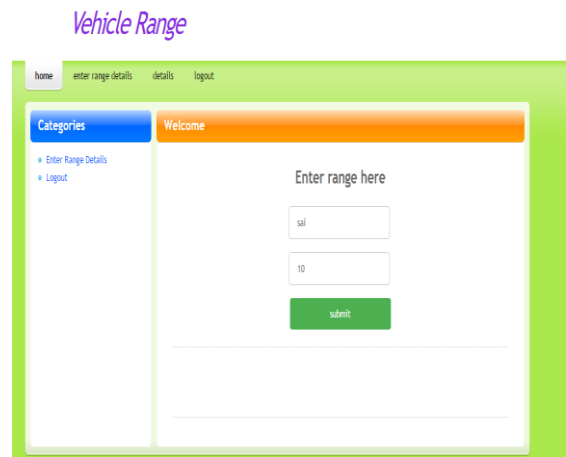


Figure 4.3 - Range



Figure 4.4 - DETAILS

V. CONCLUSION

In this application We provided the security to the vehicles when the vehicles comes to the range of the sensors then the sensor will detect the vehicles information and stores the information of the vehicles in the database and retrieves the information of the user when the details of the information is required. Whenever the vehicle comes nearer to the sensors range The admin will calculate the distance and checks whether the vehicle is in the sensors .

VI. FUTURE SCOPE

In this application There are several possible directions for future research on this area. The most promising one we believe is a model in which more security is provided to the vehicles on the road. We can also extend our work to support security by sending messages about vehicles to email account and maintaining the for future reference. This application can also be extended to provide the security to the vehicles By doing this application in the Real time with the help of sensors.

VII. REFERENCES

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