

ANTI-THEFT PARKING SYSTEM FOR VEHICLES BASED ON GEO-LOCATION DETECTION AND INTERNET OF THINGS

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ABSTRACT

To Provide security to the vehicle as in today's world every individual have their own vehicle when it comes to go somewhere but when someone goes to any populated area there is also a possibility that he/she will not get the space to park his own vehicle and due to which the owner will try to park some other place which can lead to theft of that vehicle a owner is not there to keep a sight on it so here is a software which will keep track on vehicles geo-location and will inform the owner whenever there is a change in the actual location where the user has parked it.

Keywords- Anti-Theft, IOT, Geo-Location, Vehicle

I. INTRODUCTION

The project idea came by the observation of current scenario. As we have seen in a new research which is promising that the sale of vehicles year by year increases by 125 percent every year and as much as vehicles increases there is also chance that there will be lack of parking spaces for the vehicles there is a need of a software like web application in which user is provided with a parking mode option in which user turns on their parking mode and then that web app will hold that particular vehicle's geo-location coordinates and will send an alert message to the user having latitude longitude of the vehicle so that user can have a track on the vehicle and prevent from the theft. Also there is an urgent need of a system which can accurately recognize thief in case of vehicle theft.

Problems addressed from this project idea:

- Need of keeping a sight on the vehicle.
- Lack of transparency in recognizing thief.
- Enormous Theft by thieves at different markets.
- No accurate system to correctly identify a vehicle thief.
- Large numbers of security personals are required for manual parking areas.
- Every year many security personals get seriously injured at parking areas in attempting to stop Thieves.
- Current system is very old and needs to be updated according to vast increase in vehicles in markets and available technology.

II. RELATED WORK

Table 1: Related Work

Paper name	Published in	Published date	Author name	Conclusion/Limitations
Anti-Theft Security System for Vehicles ^[1]	International Research Journal of Engineering and Technology (IRJET)	5 th May-2018	Anjan T , Nikhil Satish, Abhinandan Kumar, Abhinav Narayan, Kiran S M	Stopping the vehicle from the registered mobile number when someone theft the vehicle is not possible

Anti-theft Security System for Vehicles ^[2]	International Journal of Engineering & Technology	4 th Dec 2018	Samir Rana, Ritu Mewari, Lata Nautiyal	Functionalities to automate the vehicle remotely from any time anywhere with the app are under process too. I am also planning to increase the security of the vehicle by cutting off the battery supply to the vehicle, thus adding to its security
Vehicle Anti-Theft Security System Design. Volume II Technical Report ^[3]	U.S. DEPARTMENT OF CE National Technical Information Service	DEC 78	John S Howland	The protective device shall be fitted in such a way that even after removal of its housing it cannot, when in the blocked condition, be dismantled otherwise than with special" tools.
A Low-Cost Vehicle Anti-Theft System Using Obsolete Smartphone ^[4]	ID 6569826	29 th March 2018	Bang Liu ,Nianbo Liu , Guihai Chen, Xili Dai , and Ming Liu	(1) The algorithm of VA-DR matching. (2) The rules to distinguish abnormal driving. (3) More training data for LSTM. (4) More smart phone OS supports.

III. METHODOLOGY

- If there is change in position of vehicle when it is parked then there will be a alert call to the owners registered mobile number.
- First users have to register themselves then they create login id and password.
- After login if they turn on the parking mode for their vehicle and If there is change in position of vehicle when it is parked then there will be a alert call to the owners registered mobile number.

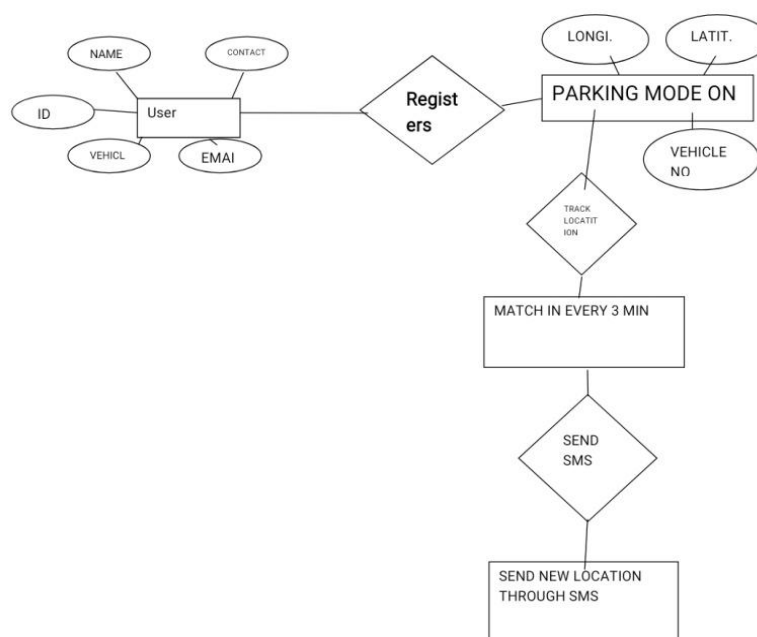


Fig-1: E-R Diagram

IV. PROCEDURE

This section describes the software algorithm for the system. The algorithm consists of the following steps

User Module:

- The user will be allowed to register through a particular website.
- The user will be allowed to login through that website.
- The user will be allowed to update his/her details on the website.
- The user will be given a window where they can turn their parking mode on.
- The user is allowed to logout from the website.

Geo-location-Tracking Module:

- Parking mode is provided to the user just after login in window.
- Geo location data will start fetching just after turning the parking mode on.
- Location latitude and longitude will be holded temporarily in the database.
- New latitude longitude will be fetched up at every 3 minutes.
- Comparison to be done between both values.

SMS sending module:

- Will check if there exists any change in the values.
- If values are same as the database value then will call the function in 3 minutes.
- If the values are not same then sms will be send through Python Sms for India API.

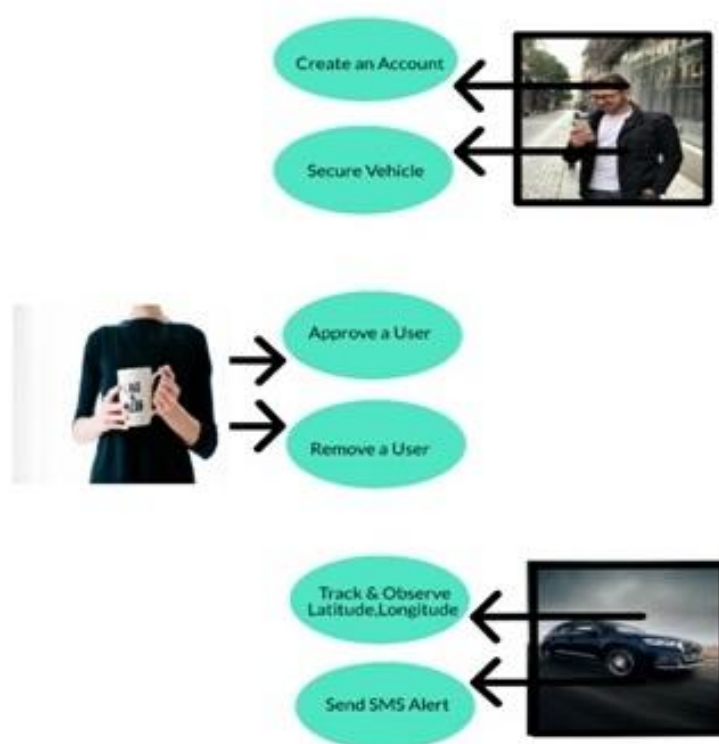


Fig-2: System Working Diagram

V. REQUIREMENTS AND METHODS

Hardware requirements:

Neo-6m GPS Module: To capture latitude and longitude of vehicle and perform Geo location tracking. The values will be fetched at every instance of time.

Arduino Board: Arduino is an open source electronic platform which works as a bridge between the computer programs and the hardware devices. An Arduino board can be programmed to perform specific actions through hardware devices such as it can glow an LED light, open barriers, send messages etc. by commanding the respective hardware devices in response to some detections made by sensors, touches etc.

Software requirements:

Python IDE: As the entire back end of the system is built up on python IDE is required.

Pycharm: Will help in better documentation for the project implementation files.

Postgre SQL: For database handling of different 4 tables using pg admin as a setup.

Django Framework: Framework will help in separating different files like of front-ends in the views named folder and all databases in models folder and both will be controlled by setting done in the template folder.

VI. RESULTS

First Page: in this page the device will show the options



Fig-3: First Page

Login Activity- In this activity identifier's information is entered into a system by a user in order to access that system. A login generally requires the user to enter two pieces of information, first a user name and then a password.

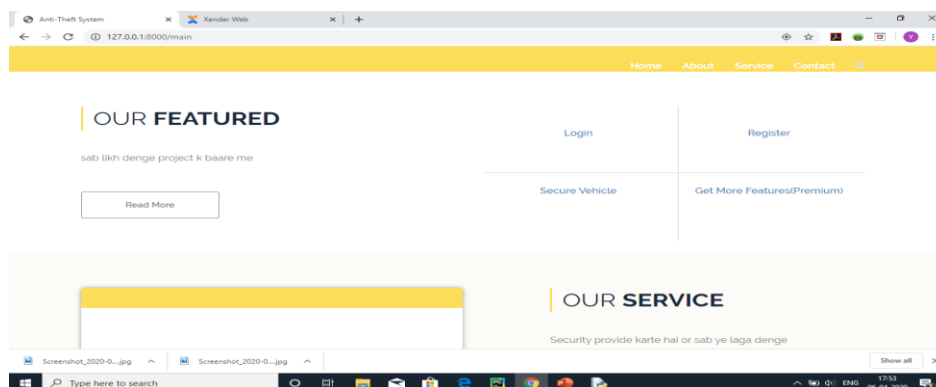


Fig-4: Login Activity

Signup Layout- This activity allows a new user to use the application by simply providing three basic information i.e. name, password and email id etc.

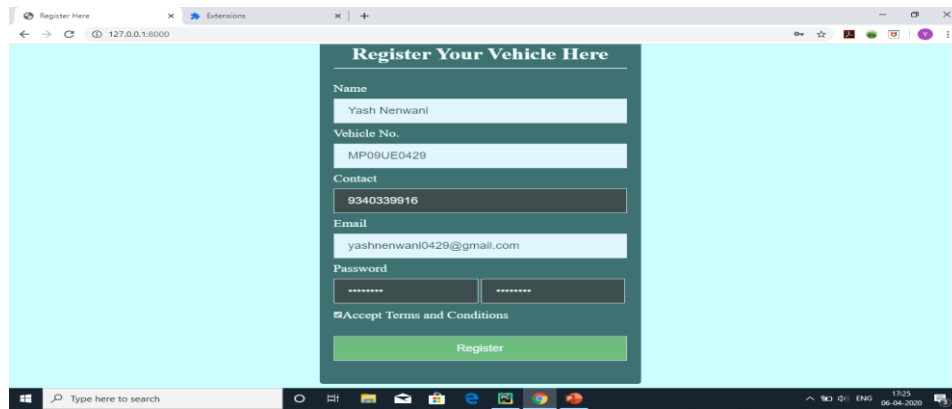


Fig-5: Signup Layout

Login Page-

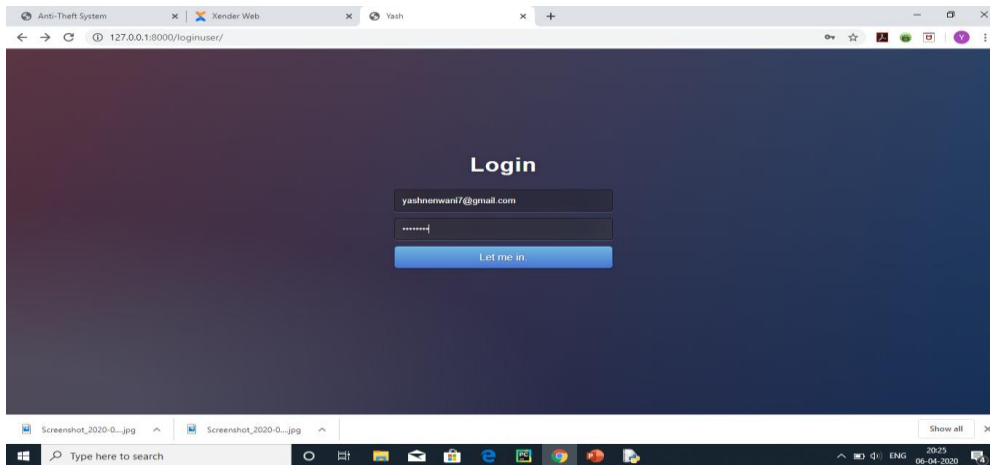


Fig-6: Login Page

Logged in layout

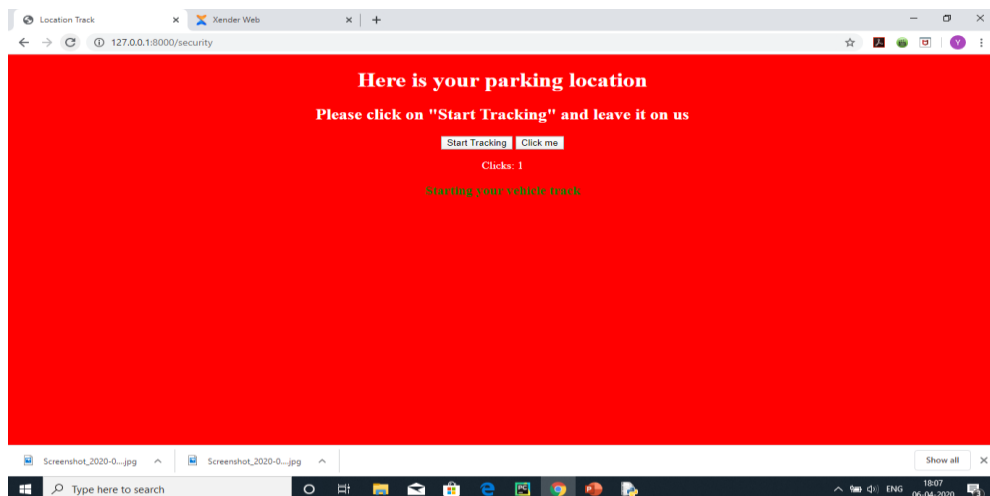


Fig-7: Logged in layout

When location not changed activity-

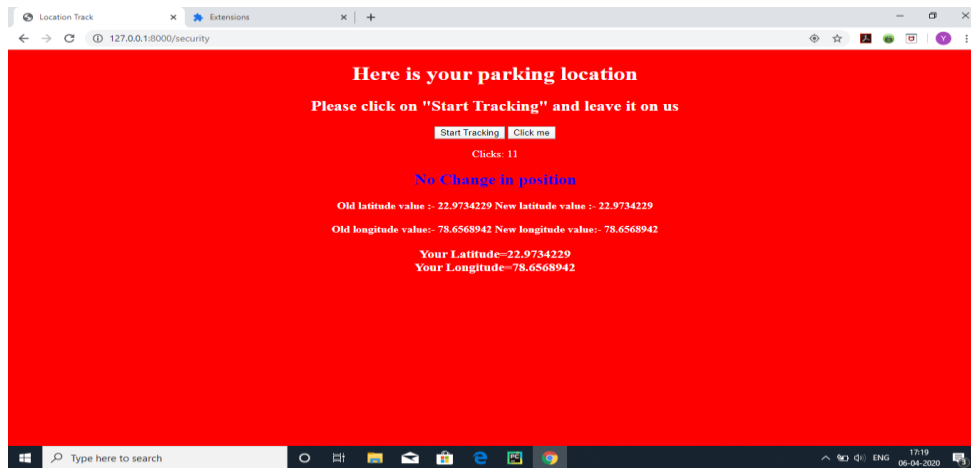


Fig-8: Location not change activity

When location is changed Activity

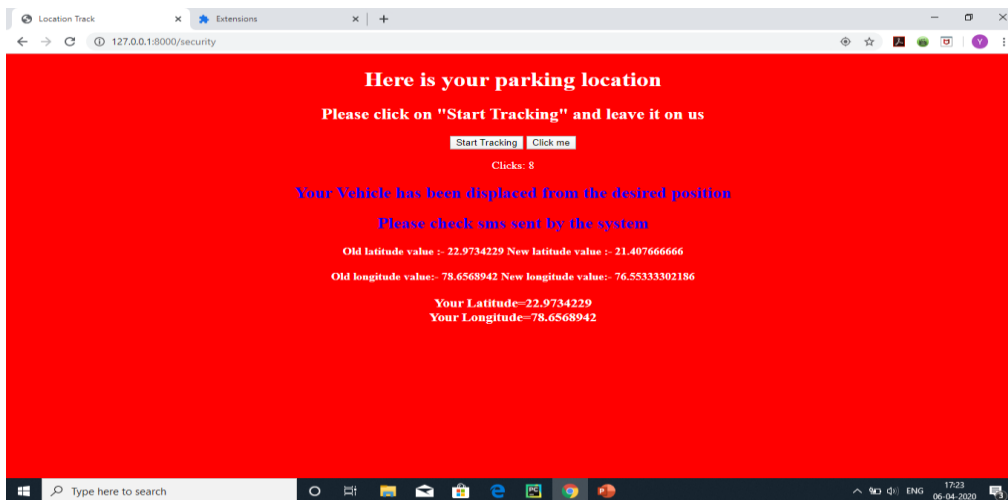


Fig-9: Location change activity

Alert SMS send to your mobile-

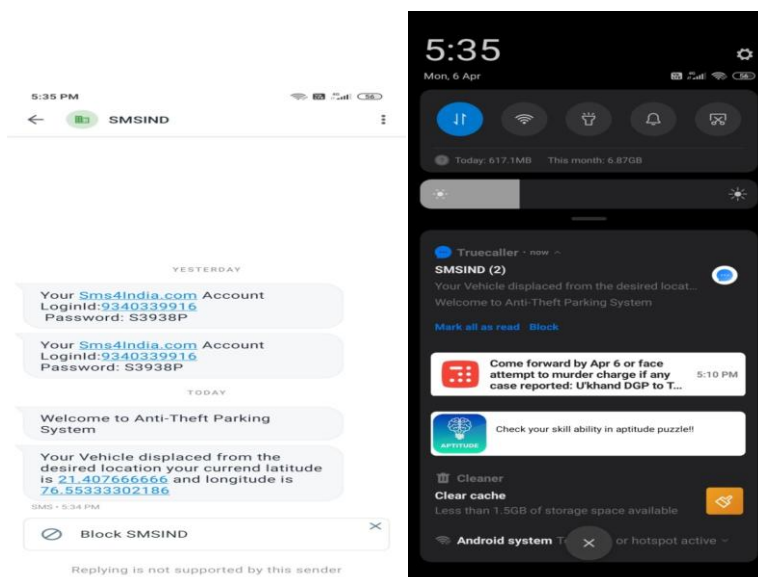


Fig-10: Alert SMS sending activity

VII. CONCLUSION

The proposed project is a step towards the optimum utilization of technological advancements in order to reduce and resolve the problems associated with the current vehicle thefts specifically in India. Specifically the system will eradicate the problems such as theft of vehicle, tempering of vehicle and need of keeping a sight on the vehicle every time when go to market etc. The system will ensure punishment of thieves and free-mind nature for legal drivers. Delivery of alert messages will ensure transparency and sense of equality among vehicle owners. The feature of thief detection will be helpful in catching the thieves and finding the stolen vehicles. This system is a complete solution to satisfy the need of hi-tech world by the application of Geo-Location Detection, Internet of Things etc. Implementation of this system can be a power booster and add another star in Digital India and Skill India Campaign.

In future, it can also be made for the two-wheeler, and can also use to catch thieves of two-wheelers too. It will be very much reliable project for today's world having a huge no. of vehicles.

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VIII. REFERENCES

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