

# **Proposal of protocol-based vehicle tracking system using ESP32**

## LITERATURE REVIEW

P.Jyothi et al. have proposed the design and Implementation of Real Time Vehicle Monitoring, Tracking and Controlling System. In this paper, if any public vehicle was theft then using GPS/GSM SIM900A module the owner can track the vehicle current location and also receives alert message. If the vehicle's speed goes beyond the specified value of the speed, then also the warning message will be received from system to the owner mobile[1].

Mohanasundaram S et al have proposed vehicle theft tracking, detecting and locking system using openCV. In this paper, any public vehicle was theft then using Face detection technology in Python Module the owner can know who theft the vehicle. By using mobile application, the device will verify the face of the owner and opens the door. If any person tries to break or damage the device, it will automatically send the alert to the owner and calls to the responsible person. This system secures vehicle from theft as well as allowing users to view the theft details and saves the data in USB drive[2].

Ibraheem Kasim Ibraheem et al have proposed the design and implementation of a low-cost secure vehicle tracking system. In this paper, XBee wireless technology is used as it provides low-cost and high-level security. The tracking module consists of a microcontroller (Arduino) platform, an XBee, and a GPS for navigation purposes. Receiving the location data of the tracked vehicle and displaying them securely on Google earth is the responsibility of the monitoring station[3].

Tareq et al have proposed the anti-theft vehicle tracking and regaining system with Automatic Police Notifying Using Haversine Formula. In this paper, Haversine Formula is used to calculate geographic distance on earth between two coordinates. Using this method, if the car is theft then the device will automatically reach to the nearest police station about the theft and from GPS data and backend database it will show where the car is going[4].

Fatima et al have proposed an economic tracking scheme for GPS-GSM Based moving object tracking system. In this paper, An Economic tracking scheme is proposed for GPS-GSM based tracking systems and both time and distance quantization are used. The moving devices (Mobiles) checks its moved distance with respect to the last sent position SMS at regular time

instants, every  $T$  second. Only if the moved distance is greater than a given threshold, then a position update SMS is sent to the server[5].

Chunlong Ma et al have proposed the design of vehicle tracking and positioning system. In this paper, Using ARM-Linux platform vehicles are being tracked. The vehicle is mounted with s5pv210 central microprocessor. GPRS network is used to transfer the positioning information between the monitoring center and the vehicle-mounted terminal in real time to achieve real-time positioning and tracking of the vehicle. GPRS and embedded technology gives a good quality in vehicle monitoring management and security protection002E[6].

Emir et al have proposed on improving Performance of Vehicle Routing Algorithms using GPS Data. In this Paper, Using Vehicle Routing Problem (VRP), Traveling Salesman Problem (TSP) and GPS tracking analyze their routes and improve input data needed for the algorithm for the vehicle routing problem[7].

Fatima et al Cost Minimization of GPS-GSM Based Vehicle Tracking System.In this Paper, GPS-GSM based system is designed and implemented to economically track vehicles moving over wide geographical areas. A scheme is proposed to reduce the number and cost of the used SMS messages. Performance evaluation under hypothetical and practical test cases showed the capability of the proposed system to achieve significant cost reduction[8].

Elamin et al have proposed a paper on design of vehicle tracking system using GPS. The interaction between the user and the car is designed to be via Short Message System "SMS". As well as in case of theft or scope of work departure, the user has the capability of turning car engine off remotely[9].

Narain at al have proposed a paper on Security of GPS/INS based On-road Location Tracking Systems. The paper evaluates the security and guarantees of INS-aided GPS tracking and navigation for road transportation systems and considers an adversary required to travel from a source location to a destination and monitored by an INS-aided GPS system. The goal of the adversary is to travel to alternate locations without being detected. The paper develops and evaluates algorithms that achieve this goal, providing the adversary significant latitude[10].

**Research gap:**

The existing papers just focuses on just the implementation of the GPS live tracking without defining the clearly the framework where all the required operations are performed in the modular approach. Hence we are proposing the layer based GPS live tracking protocol defining clearly the objective of each layer.

**Objectives:**

1. Propose the layer based protocol for live GPS tracking.