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FINAL YEAR PROJECT REPORT

(EEE368)

VEHICLE LOCATION TRACKER

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ABSTRACT

Vehicle Location Tracker is designed to track vehicles using a real-time location and send notifications to vehicle owners in case anything happens to their vehicle. It is used to determine the GPS location of automobiles or other objects connected to a tracking device. In this project, the main components are Arduino Uno, GSM Module (SIM800L) and GPS Module (NEO-6M). The Arduino board serves as the system's control unit. It is in charge of data processing, command execution, and communicating with the GSM and GPS units. The Global System for Mobile Communications (GSM) module allows connection with the car via the GSM network. It allows for the sending and receiving of SMS messages, as well as remote control and monitoring of the car. The GPS module incorporates the tracking system's Global Positioning System (GPS) capability. It receives GPS satellite signals to identify the vehicle's precise location coordinates. The serial connection connects Arduino to the GPS and GSM modules. The GPS receiver provides data to Arduino. The Arduino then asks the GSM module to communicate the position data to the GSM enabled device in the form of a brief message.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF STUDY

The Modern Global Positioning System (GPS) is an absolute marvel for both dealerships and vehicle owners. Today, GPS tracking for car dealers can find stolen vehicles in real time, keep drivers informed of their driving behaviors, and even send an alarm when maintenance is due, owing to an integrated diagnostic tool. However, GPS wasn't always as beneficial. GPS was developed in the 1960s, but tracking devices took decades to grow into the technology we know today [1].

In the 1960s, government and military entities developed the concept of GPS. Aerospace engineers launched the first Block-I experimental satellite in the year 1978, and by 1985, ten more had been sent into space. Initially, the US Department of Defense employed these satellites to monitor its vehicles and equipment. In 1983, President Ronald Reagan approved civilian commercial airlines to utilize GPS to enhance air travel safety. This was GPS's first use outside of military purposes. At the time, there were not enough GPS satellites in orbit to support fleet management. GPS tracking for fleet vehicles was not available until several years later, in the 1990s [1].

Millions of individuals now utilize GPS in their daily lives because of significant price reductions and technological advancements. This user-friendly technology allows consumers to communicate their whereabouts with family members, avoid traffic jams, plan routes to new places, and much more. Individuals can also utilize GPS to track their exercise activities. GPS has also contributed to the

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CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

The Arduino Uno, GSM module, and GPS module are utilised as key hardware in this project and the fundamental C programming language is used for hardware description language to design a simple digital circuit. Initially, the Arduino programmable microcontroller board is loaded with the sketch. The GPS receiver then tracks the satellite data and feeds it to the Arduino Uno. The Arduino then sends its data to the GSM module to the SIM card number specified by the user. Under these conditions, one can learn the location of vehicles or moving objects by receiving a short message on the chosen Android cell phone.

Arduino is hardware and software-based open-source electronics prototyping platform [2]. The link between the actual and virtual worlds can be made by connecting Arduino to the Internet and either sending data to the Internet or responding to data on the Internet, or both. It is possible to perceive practically anything using sensors, including light, temperature, pressure, and sound. The way Arduino reacts is determined by how the program is implemented. Arduino is a popular and simple programmable board for developing our own creations.

Arduino creations can be standalone or connected to a computer through USB [3]. The Arduino microcontroller oversees controlling and interfacing the GPS module and the GSM receiver. Arduino can sense its surroundings by accepting input from various sensors and displaying and monitoring the sensor data. The Serial Monitor is included with the Arduino IDE. Its function is to allow messages to be sent from a