

Chapter One

Introduction

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1.1 Preface:

Tracking system is very important in modern world; this can be useful in navigation, monitoring, tracking of the theft vehicle and various other applications.

Vehicle tracking systems were first implemented for the shipping industry because people wanted to know where each vehicle was at any given time [17]. These days, however, with technology growing at a fast pace, automated vehicle tracking system is being used in a variety of ways to track and display vehicle locations in real-time [18]. A vehicle tracking system that uses GPS/GSM/GPRS technology and a Smartphone application provide a better service and cost effective solution for users.

The design and development of a vehicle tracking and monitoring system especially useful for cars rental offices in real-time .The system principally monitors vehicle moving and tracking appliances such as position, and speed.

The ability to accurately detect a vehicle's location and its status is the main goal of automobile trajectory monitoring systems.

1.2 Problem Statement:

Car Rental offices faces the problem of determining the vehicle location and whether it has been stolen or no. Also they face problems of customers returning the vehicle in time.

1.3 Proposed Solution:

A vehicle monitoring system will be developed to be used in companies with large vehicle fleets and also companies with few vehicles. All the information will be monitored on a smart phone.

1.4 Aim and Objectives:

The aim of this project is to design and implement of vehicle tracking system using android.

The objectives of this project are:

- To get the real time vehicle tracker through smart phone.
- To provide the interfaces with the peripherals to collect the data (location and speed) and implement data communications to send that data to the MCS.
- To view the data collected on the Vehicle Tracker by using the MCS app on an Android Smartphone.

1.5 State of the Art:

This thesis reviewing several papers has the same scope of work of this project. Study the related work of random selected papers to mind the gap between aims of this project and other papers.

Mainly the idea concentrates in how to get accurate location of the vehicle and monitored that in smart phone/screen via digital map, also to communicate with the vehicle through specific device.

Most of papers use GPS, GSM/GPRS modules for locating vehicle and getting the coordinates Data. All of papers use smart phone for monitoring and some of them for monitoring/controlling the vehicle in case of anti-theft circumstances. Some of papers show the real time location without data saving and most of them used the server data saving approach.

The on-line/off-line data saving and monitoring formalized big challenge for all papers, so they deal with different approaches to achieve this target. All of papers used different types of microcontrollers,

wearable devices or IoT methodologies, and composed it with specific modules/shields in order to achieve that goal.

1.6 Methodology:

The GPS Module will be used to receive the coordinates of the vehicle from the satellites among other critical information, and then send location and speed to the LinkIt-ONE board. The speed will be calculated using GPS from coordinates of two points. The Link-It ONE development board will be used to process the received data from the GPS module and send the information to the GSM modem. The GSM/GPRS module or Wi-Fi antenna will be used to transmit the updated vehicle database to the server, and the user access the database using MCS application on the smart phone. The Android application (MCS) on smart phone will provide the exact location and speed of target.

1.7 Thesis organization:

Chapter Two is a theoretical background and related works in a field of vehicle tracking system using android.

Chapter Three describes steps of hardware design the vehicle tracker and how to view it in a software application.

Chapter Four discusses the results of simulation and implementation for the project.

Chapter Five explain the conclusion and the future ideas that can be performed.