**Project Overview:**

There are often inconsistencies when using public transportation services, such as not knowing arrival times of vehicles. Moreover, the public transportation operators have difficulties in tracking and managing their vehicles.

In this project, we have implemented a vehicle tracking system targeting the minibus services. The position of each minibus is reported to the system server. In addition, the system server provides a web interface for both administrators and passengers to receive tracking information of the minibuses. Furthermore, the system server sends SMS reminders to possible passengers, informing them the optimal time of taking minibuses.

**Methodology:**

The following software and hardware components are designed and deployed.

**Software components:**
- **Database**
- **Web Server**
- **Web-Based Vehicle Tracking and Dispatching System**
  - A web page displaying a Google Map with information of vehicles and stations
- **Database Manager**
  - A Java program monitoring and updating the data of minibuses
- **SMS-Sending Manager**
  - A Windows Mobile application sending via the SMS reminder
- **Station-Device Manager**
  - A Windows Mobile application receiving and displaying updated arrival time
- **TVT Manager**
  - A Java program reporting the GPS data of the vehicles
- **Passenger Helper**
  - A Windows Mobile application querying the arrival information of stations and making requests for SMS reminders

**Hardware components:**
- **Linux Server**
- **In-Vehicle-Terminal**
  - A Windows Mobile phone with HSPA and GPS modules
- **Station-Device**
  - A Windows Mobile phone with HSPA module

**Aims and Objectives:**

The aims of our project is to use GPS and 3G technologies to implement a vehicle tracking system. Furthermore, using the internet, we can extend the features of our system such as SMS reminders, vehicle status on Google Map, etc.

The vehicle tracking system provides information services, such as queries on arrival times and vehicle tracking, to passengers and administrators of transportation companies. The main objective of the system is to provide a cheaper and more flexible solution to operators. The features of the system are the following:

- SMS reminder to potential passengers
- Arrival time comparison
- Automatic adjustment of price
- Speed monitoring
- Web-based information center

**Results and Conclusion:**

It was confirmed that the In-Vehicle-Terminals reported their position information to the server successfully.

Moreover, the SMS-Sending Manager successfully controlled the Windows Mobile phone to send the SMS reminder to the right users.

In the web UI, the Google Map functioned properly, and the icons on the map, representing the minibuses and stations, were updated successfully. Using the Passenger Helper on the Windows Mobile phones, we successfully received the arrival information and made requests for SMS reminders. In conclusion, the system was successfully implemented.