Analysis and Design of a Web-Based Transport Automation System With Vehicle Tracking for JU

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Abstract

In this project we design a web-based system that will replace efficiently a bunch of pen-paper work of the Jahangirnagar University's transport system, authority. Every member's(e.g – students, teachers, staffs drivers, conductors) information, vehicle's detail information(e.g – capacity, chesis number, maker, engine number etc) will be kept in the central database. The most attracting and useful feature of this proposed system is the GPS tracking facility of the vehicles of the university.

Motivation

- According to the university document there are almost 20,000 people working here including teachers, students, staffs.
- We need a well organized transport system where everyone can get information without presenting there over internet.
- Many students of the university have posted on social media like facebook for such kind of system.
- Considering this we get the motivation for developing a digital transport system and we will be really very happy if we can implement our proposed system.

Objectives

- All necessary information of the users and vehicles will be organized in a central database.
- Staffs can easily document all the information of the system.
- Users can easily excess all the information according to their limit.
- User friendly Graphical User Interface(GUI).
- Users can track the desired vehicle.
- Well documented tracking histories can used for further analysis.

System Design

In our system there are four type of actors : student, teacher, admin, staff. Functionalities of our system are :- login, update, scheduling, tracking, check bus history.

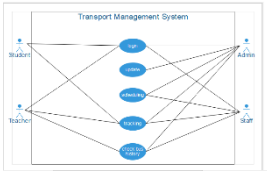


Figure : Use Case Diagram of an Overview of Transport Automation System and GPS Tracking System

GPS Tracking

A **GPS** device provides the latitude and longitude coordinates of a moving object that can be stored in that device or it can transfer the coordinates to a central database via internet using GPRS, SMS, Radio etc.

Figure : GPS tracking mechanism

Flowchart Diagram

Users need to be logged into the system. According to their role they will get services.

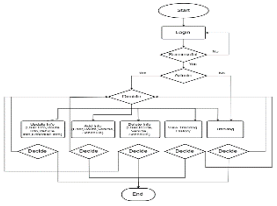


Figure : Flowchart Diagram of transport system

Data Flow Diagram

Data Flow Diagram shows the flow of Data through the system.

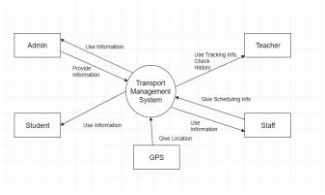
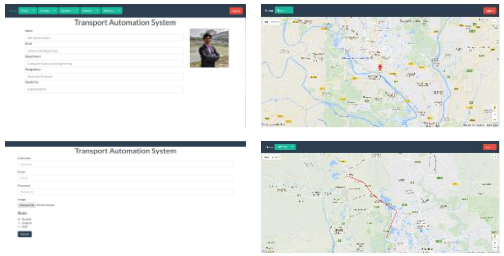


Figure : DFD Level – 0 for our proposed system

User Interfaces



Conclusion and Future Scope

- We have a central database, GPS tracking device, user friendly interfaces. Using existing web service we can upload data and retrieve data from the database.
- In future we can add some new features like automated alerts, geo fencing, engine diagnostics, energy saving etc. We can also develop our own web services.

References:

[1] H. A. Abdallah Dafallah.Design and implementation of an accurate real time gps tracking system.In The Third International Conference on e-Technologies and Networks for Development (ICeND2014), pages183–188, April 2014.

[2] Ehsan Neamat. Gps tracking system, 2009. Student Paper.