



FACULTY OF ENGINEERING AND APPLIED SCIENCE

**SOFE 3490 Software Project Management**  
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# Lab 2

**Project Proposal - Railway Timetable System**

**Ontario Tech University**  
**SOFE 3490U Software Project Management**  
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## I. Introduction

This project is a Railroad Timetable System (RTS) that enables users to get pertinent information regarding train timing, like whether it is on time or running late, or the arrival time at a specific station with the use of GPS. The program can automatically monitor the time that a train departs from a station and notify the nearby stations of this information. The system will update all subsequent stations if there is a delay in a train's departure from a specific station for any reason. This project provides real-time train timetable events to numerous client apps as well as computer systems.

We chose this system because it seemed the most interesting and well defined, and we are familiar with similar systems in our daily lives. For example, though it is not a railway system, the DRT system that tracks buses in Durham Region is used by us often, and is very frustrating because it does not have real-time GPS tracking and is often inconsistent when it comes to predicting arrival times.

We hope to achieve an accurate, high-speed (eg. quick response time), user-friendly system that serves all the requirements that both we and our stakeholders define.

## II. Objectives

*The following provides an overview of the project's goals and objectives:*

- **Real-time Display:**  
The system will monitor train departure times and relay the information to other subsequent systems in real time.
- **Passenger Time Management:**  
Assist in the planning and time management of users through the distribution of train arrival times.
- **Remote Access:**  
The system information should be accessible to devices connected through any external network.
- **Precise Prediction Model:**  
The predictive tool should be as accurate as possible to improve user satisfaction and reduce the time costs for users.
- **User-friendly:**  
The system should be designed such that the user can retrieve relevant railway information in a simple and time-effective manner.
- **Admin Intervention:**  
The system administrator must have the ability to input data to override train information in the case of line stalls or other delays.

### III. Measures of Success

*The following provides an overview of the project's measures of success:*

- The system contains a functional database that will track the departure times of trains and automatically calculate the expected time for the train to reach the next station, this information will then be automatically displayed to all subsequent stations.
- A low number of complaints (ex. less than 2% of users) issued on a monthly basis
- Users can access railway information from their devices. All connectivity tests must pass to ensure that there are no conflicts with accessing system information.
- Statistical analysis between a sample set of observed and predicted arrival/departure times.
- A high number of active users (ex. 10k+) indicates that the application provides a useful and friendly interface for users to interact with.

### IV. Infrastructure

*The following provides an overview of the project's infrastructure:*

- **Centralized Computing System**  
Physical computers that do all the calculations for train timetables
- **Database System**  
Physical database that stores all train information (ie. standard schedule, delays)
- **Communication System**  
Software system that allows train conductors/engineers to communicate with system admin.
- **GPS tracking**  
Physical GPS transmitters installed within every train to detect when a train enters and leaves a station.
- **Mobile Interface**  
A software mobile user interface which displays current trains and their expected arrival times
- **Station Displays**  
Physical displays which show all trains that pass through that station and their expected arrival times