JagTrack
LCO Milestone Briefing

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Project Overview

Scope:

- This project will provide a tracking mechanism for the University of South Alabama's transportation system, the JagTran.
- This will give students a way to track the bus, plan out their schedule, and know when to get to a bus stop.

Project Overview

The vision document contains:

- Who the stakeholders are and what they want
- Who the passengers are and what they want
- How our solution will help them with their problem .

The main Issue :

- The buses are not as reliable as needed by the passengers

The Solution :

- Give the knowledge of Buses (for the passenger)
- Provide *Passenger Information* (for the administrators).

Use Case: Boarding JagTran

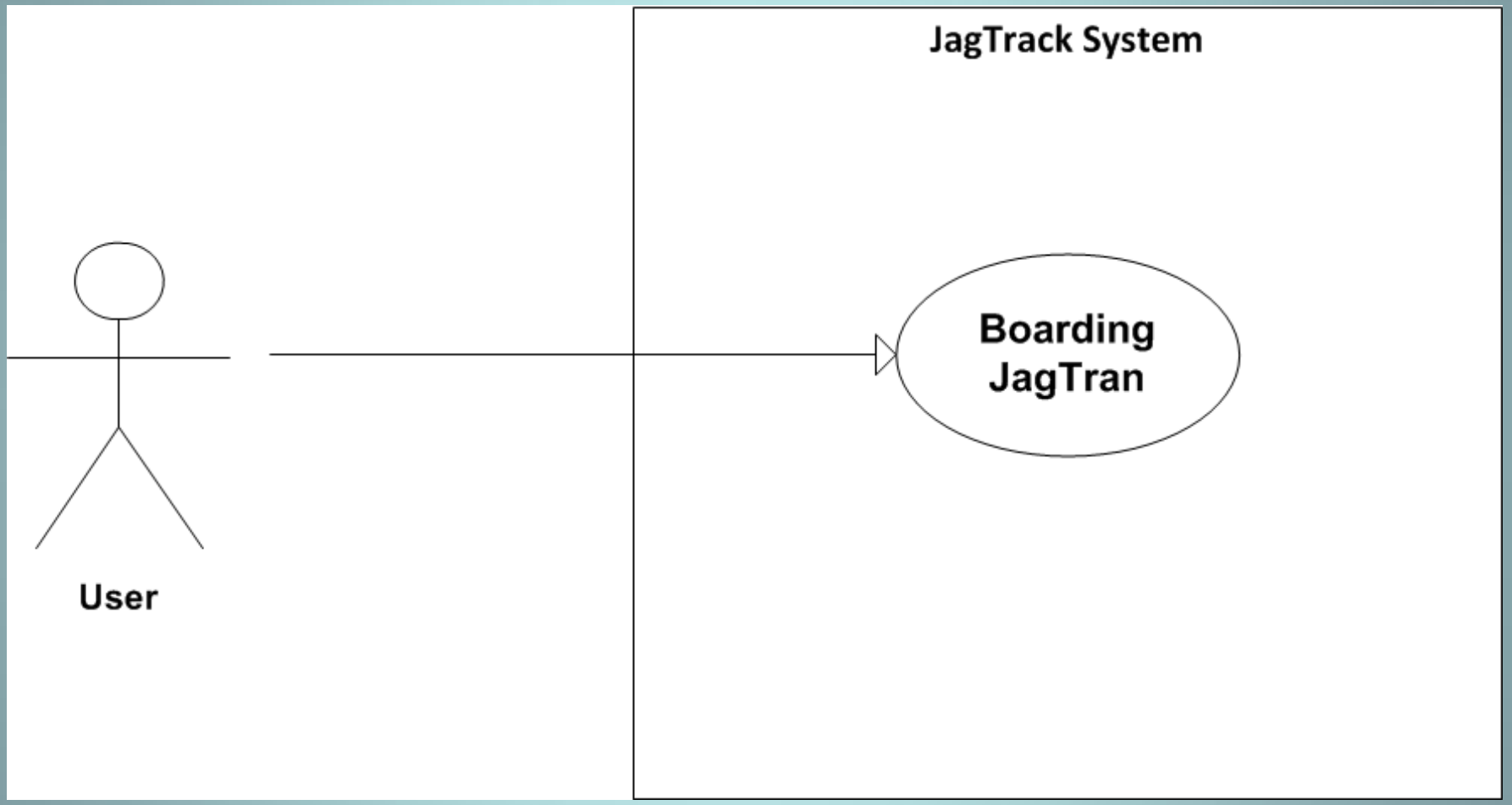
Actor:

- User (Passenger)

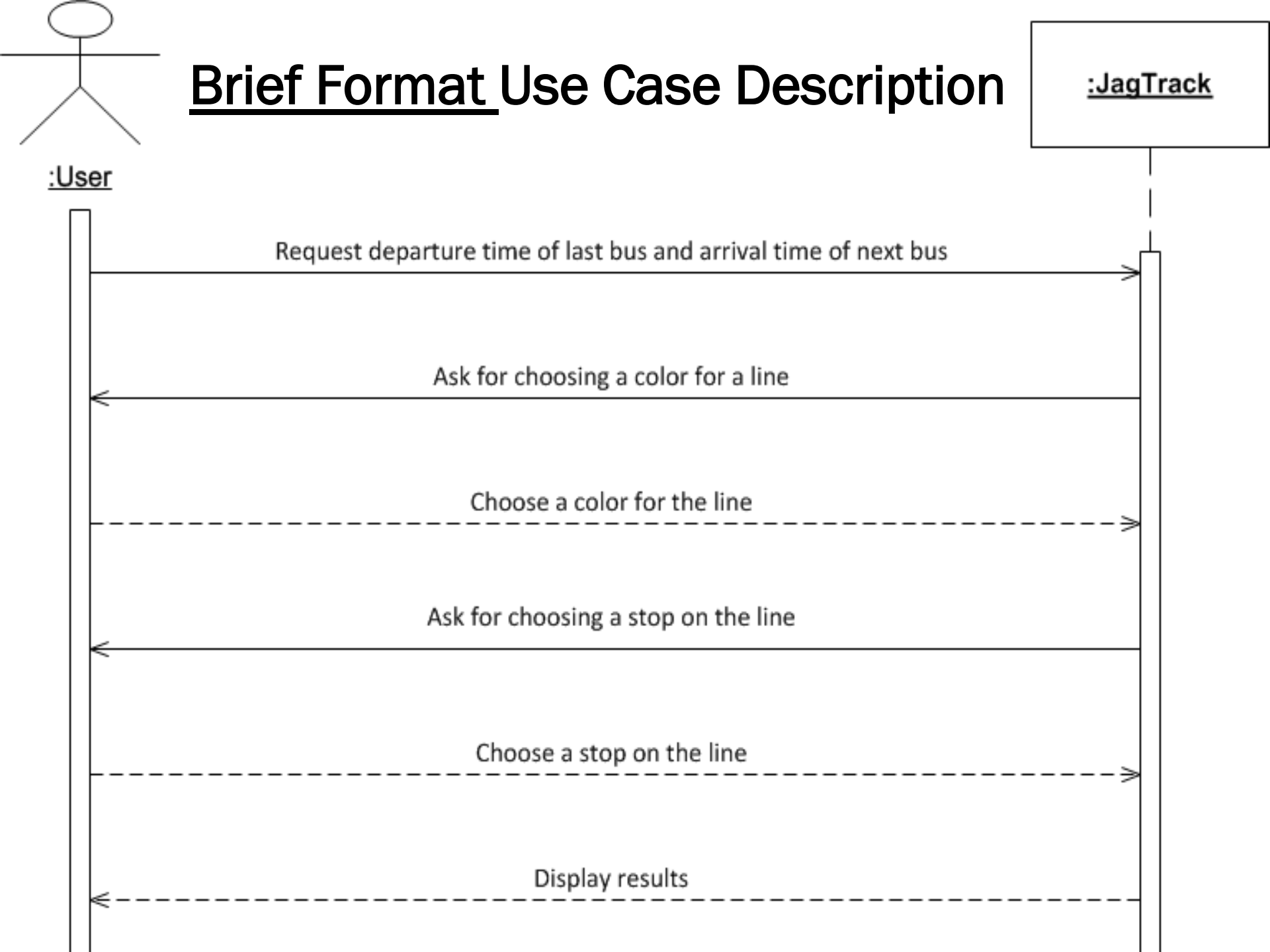
Goals:

- Knowing when the last bus left from a specific stop
- Knowing when the next bus will arrive at a specific stop

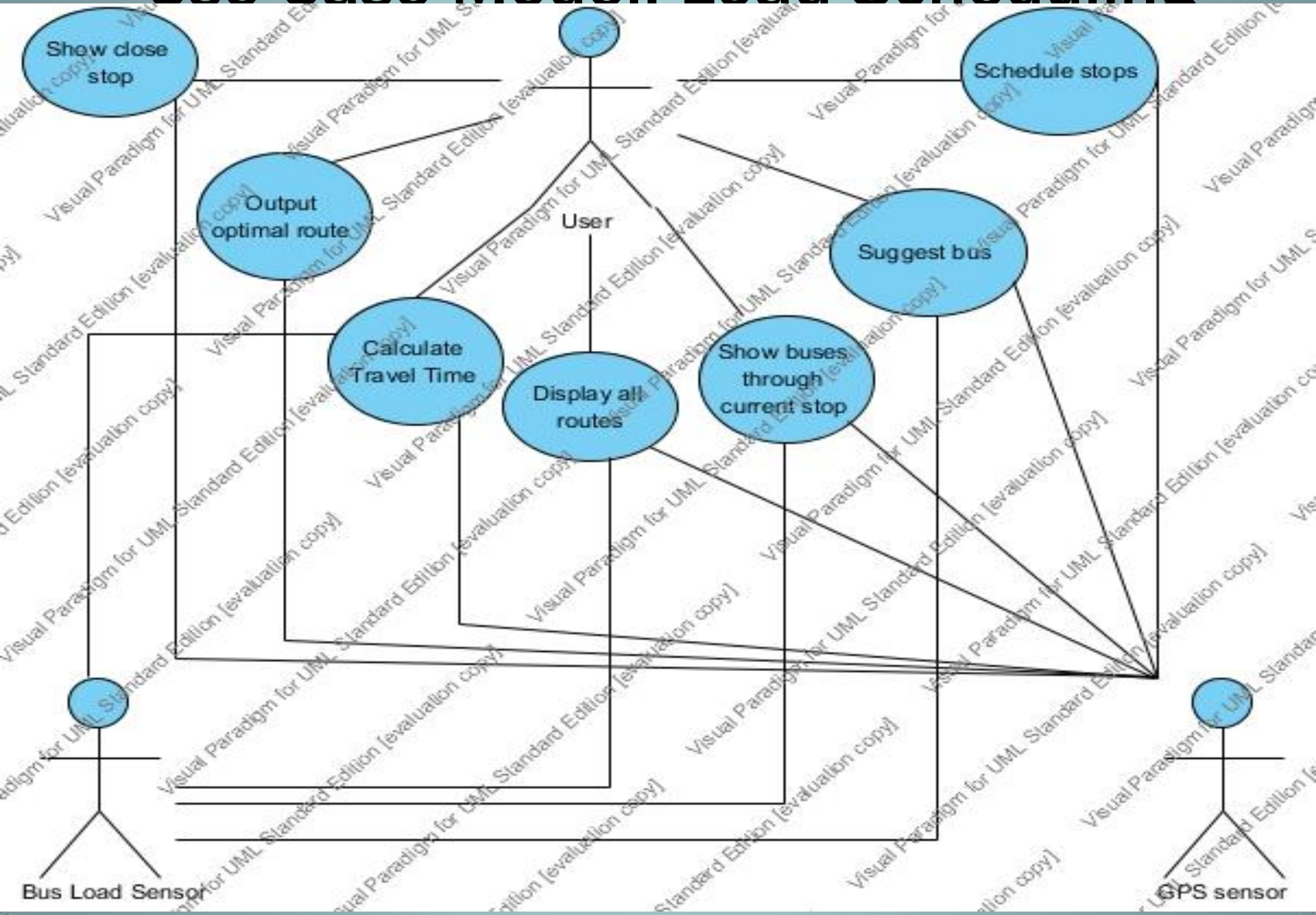
Use Case Model



Brief Format Use Case Description



Use Case Model: Load Scheduling



Main Brief Use Cases

- User accesses application and chooses desired Jag Tran stop. System outputs the amount of time since last departure of a bus and amount of time before another bus arrives. Check bus status
- Application is accessed and the system tells how many people are on each JagTran bus. Check bus load

Nonfunctional Requirements

Usability

- **Android Compliance**
- The user interface shall be Android compliant.

Design for ease-of-use

- The user interface of the JagTrack System shall be designed for ease-of-use and shall be appropriate for a smartphone-enabled user community with no additional training on the System.

Nonfunctional Requirements

Reliability

- **Availability**
- The availability requirements will be defined in the next iteration.
- **Mean time between failures**
- The MTBF requirements will be defined in the next iteration.

Performance

- **Database access response time**
- The system shall provide access to the legacy route catalog database with no more than a 10 second latency.
- **Transaction response time**
- The system must be able to complete 80% of all transactions within 30 seconds.

Risk List & Mitigation Strategy

Technology

- The Android hardware used for testing may fail at critical times during the project.
- Mitigation Plan: Currently, we are making use of Android simulators to reduce the affect of this risk.

People

- The staff may not be familiar with the specific tools needed to design the Android application or other system components.
- Mitigation Plan: Prototype development and working code development is being done by individuals with some experience with the technology

Organizational

- Group communication lacks as semester gets busier.
- Mitigation Plan: Group is currently using GitHub and email to relay due date and goal.

Risk List & Mitigation Strategy

Tools

- Plugins/SDK that are required for Android development may be difficult to install and configure
- Mitigation Plan: We will have setup instructions for the tools posted on GitHub

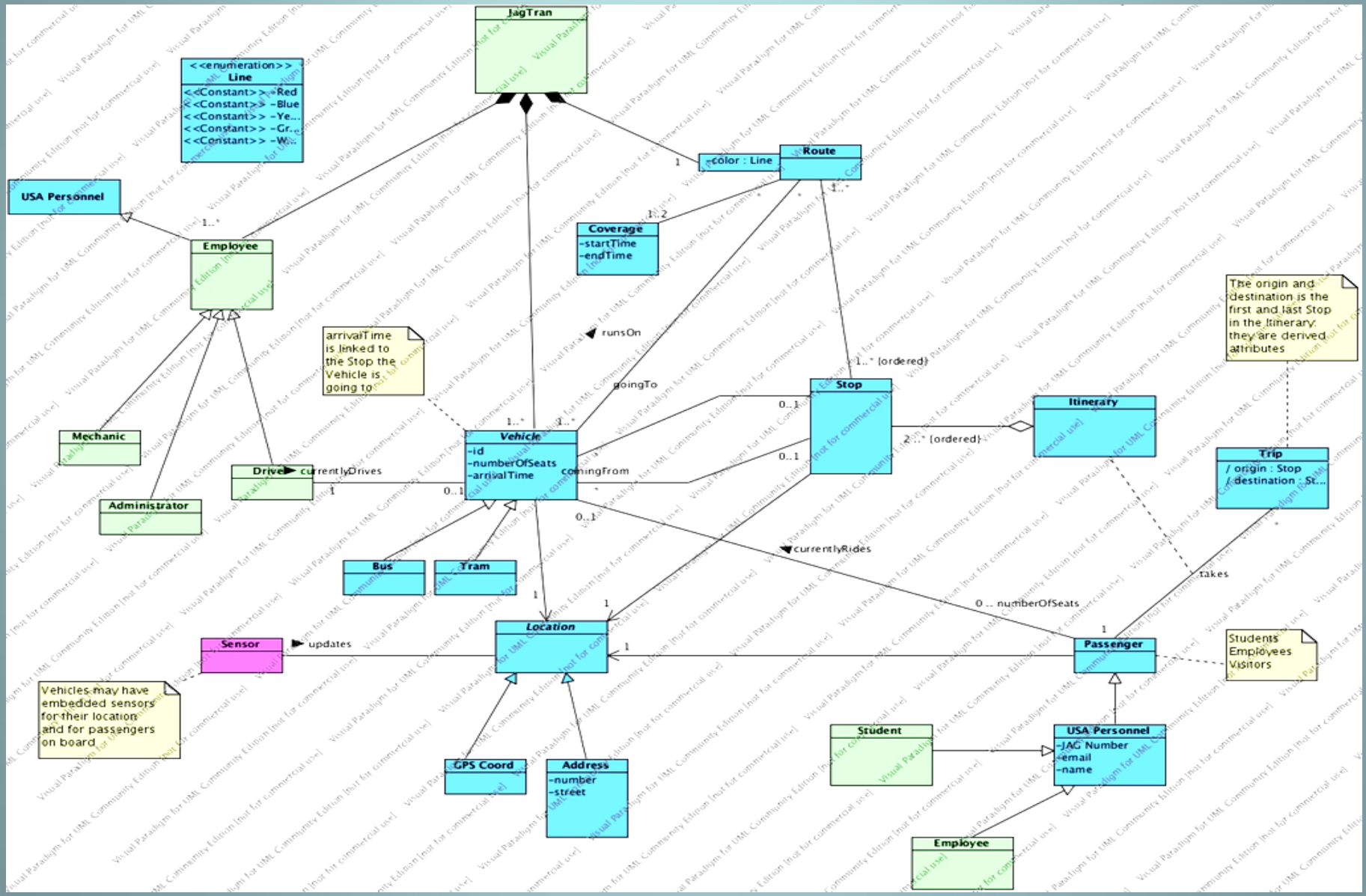
Requirements

- The JagTran management may not fully specify what they want from the system, causing requirements to change in the middle of the project.
- Mitigation Plan: By using an iterative development process, the JagTrack team is prepared to handle changing requirements

Estimation

- The time required to complete the project is underestimated since most of the staff involved will be learning new skills
- Mitigation Plan:
  - The work has been divided amongst many different staff members so that each member doesn't have to do too much work
  - GitHub contains links to tutorials do decrease the amount of overhead for mundane tasks such as configuration management and version control

Initial Domain Model



Requirements Traceability

Phase

- At the beginning of each phase of the development process, the requirements and constraints will be assessed and changed according to new manifestations in the process and product.

Iteration

- Much like the process at the end of each phase, requirements will be assessed at the end and all throughout the iterations until release. If changes in requirements are required mid iteration they will be addressed when needed.

Requirements Traceability

Prototype Release

- Whenever a prototype is released the information gathered from the prototype will be used to update the requirements and confirm that the project is holding to the requirements already established.

Customer Meeting

- Every customer meeting will provide feedback from both team leaders and the customer as to assess whether the project is holding to the original and current requirements. Any changes needing to take place can be addressed at these meetings and implemented if deemed necessary.

Recommendations on components to buy/build/reuse

Devices & Tools:

- GPS sensors ($40 - $200)
- Possibly motion sensors ($20 - $300)
- Visual Paradigm (a software tool)
- Possible software libraries

High Level Candidate Architecture

Data

- All data storage will be done via SQL database
  - [database model & provider subject to change]
- Bus locations can be obtained via GPS sensors

Route times will be estimated and averaged based on length and previous times

Student's boarding & exiting the bus can be done in several ways:

- Motion sensor on the bus
- Interaction with the application

Plans for Prototypes/Demos

One UI Prototype will be ready by the first LCO phase deadline

For the second iteration, research into OODBMS will be done

At the end of the second iteration, a demo for accessing the database should be done

Development Case

Major RUP changes:

- Reports were omitted, unneeded due to team size and length constraints
- Audits were omitted for same reasons

Development case contains:

- rough artifact deadline information
- team information

See CM Plan for information on how we suggest to submit and manage code and artifacts.

Estimated Project Schedule

- LCO Artifacts Due : 03/12/2012
- LCO Presentation Slides Due : 03/16/2012
- LCO milestone : 03/20/2012
- Project Iteration Briefing : 05/01/2012