JagTrack
LCO Milestone Briefing

Presented by:
Hayden Chudy
Robert Fornof

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.

The vision document Contains the general ideas of :

- 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 :

- Create a program that will do the following :

Give the knowledge of Buses (for the passenger)

- When last bus left.
- When the next bus is due.

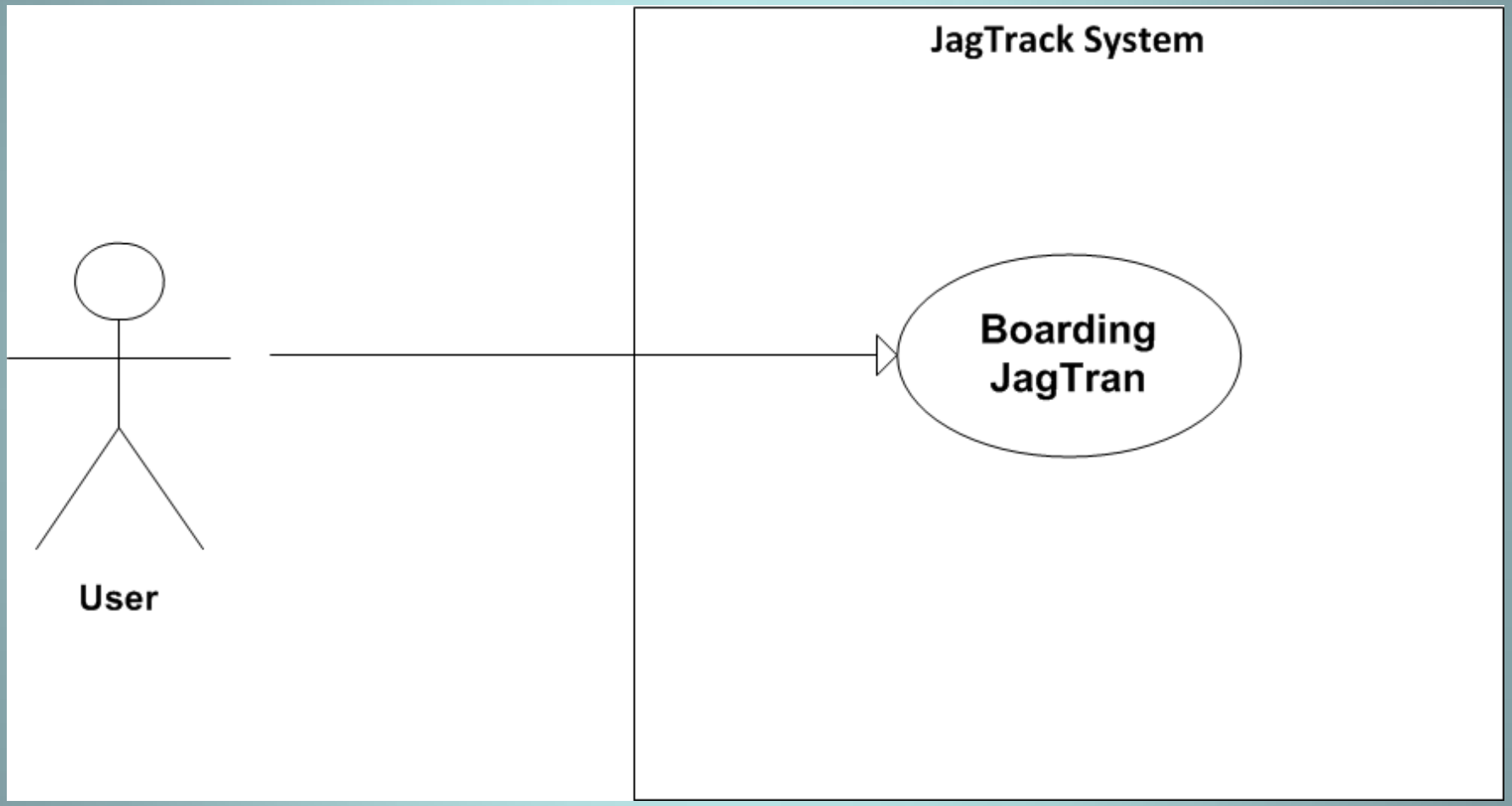
Provide *Passenger Information* (for the administrators).

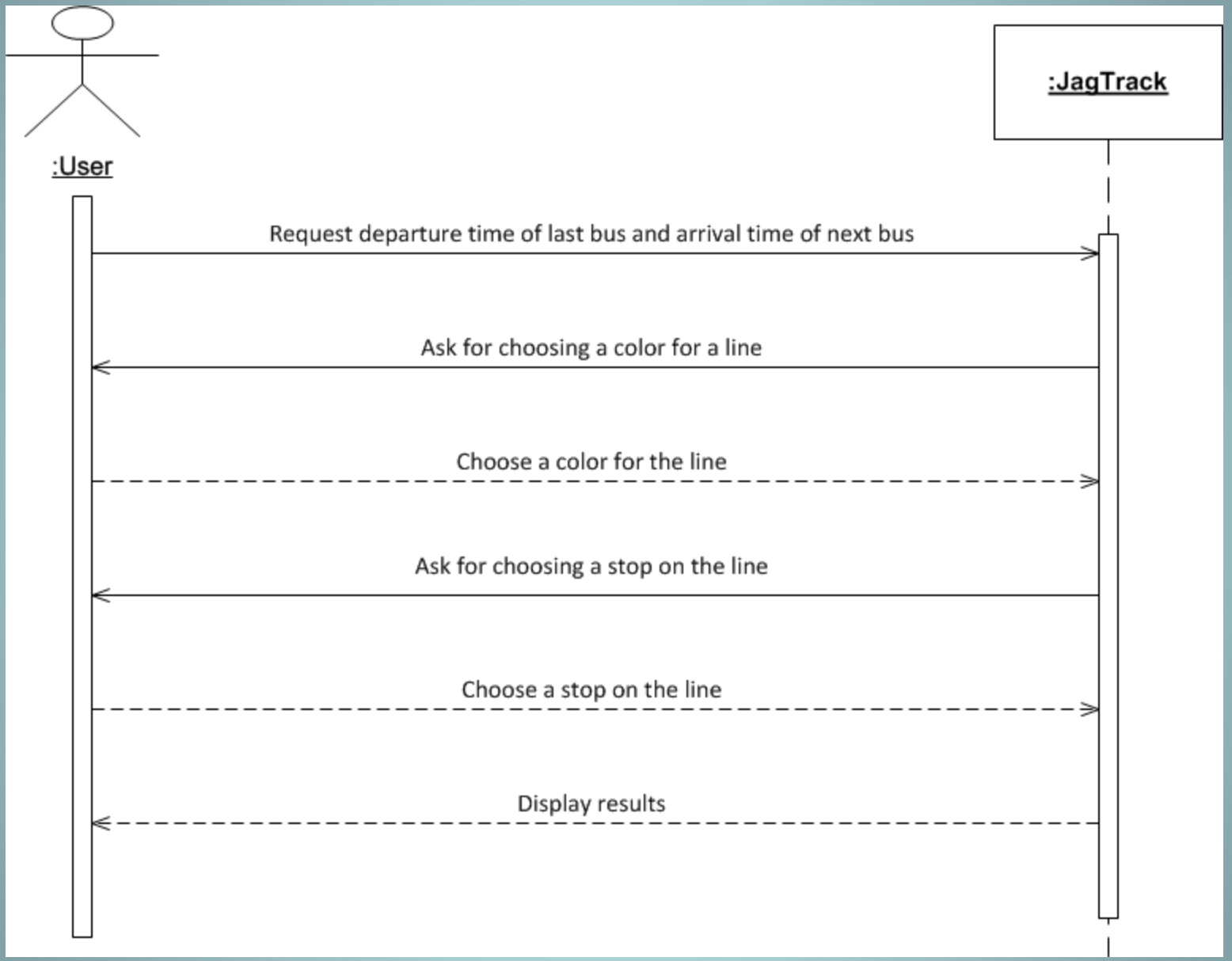
- How many potential passengers are at the stops?
- How many passengers are on the buses ?

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

- Diagram




:User
:JagTrack
Request departure time of last bus and arrival time of next bus
Ask for choosing a color for a line
Choose a color for the line
Ask for choosing a stop on the line
Choose a stop on the line
Display results

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.

- **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 course 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.

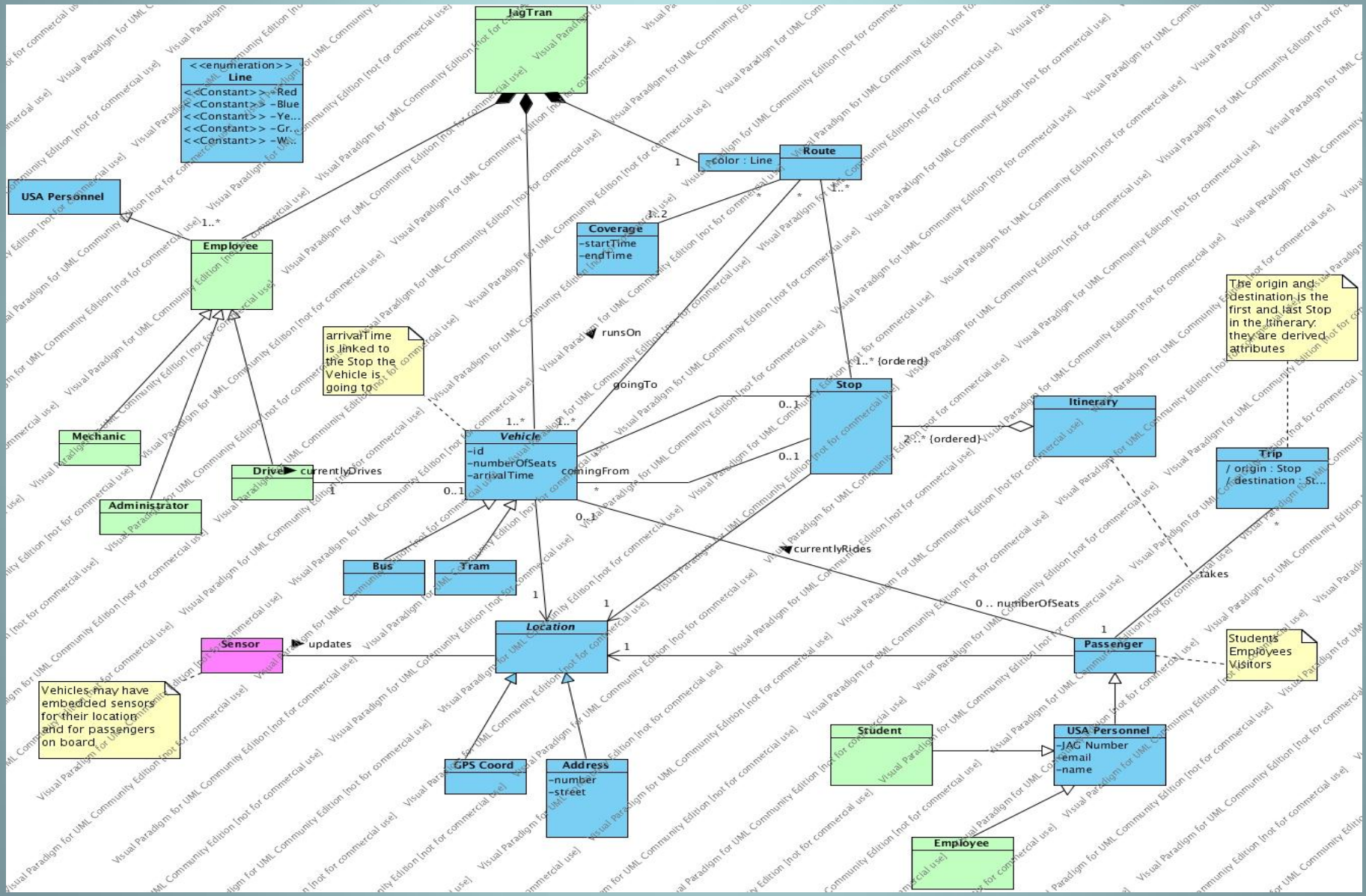
Risk List

- 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

- 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

Iteration

Prototype Release

Customer Meeting

- 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.

Requirements Traceability

Phase

Iteration

Prototype Release

Customer Meeting

- 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

Phase

Iteration

Prototype Release

Customer Meeting

- 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.

Requirements Traceability

Phase

Iteration

Prototype Release

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

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

High Level Candidate Architecture

- All data storage will be done via SQL database (database model /provider subject to change)
- Bus locations can be obtained via GPS sensors
- Student's boarding/exiting the bus can be done in multiple ways:
    - Motion sensor on the bus
    - Interact with application

High Level Candidate Architecture

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

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
- Has rough artifact deadline information
- Has team information
- See CM Plan for information on how to submit artifacts and code

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