Initial Progress Report

Team Arrow

February 2016

Chapter 1

Project Description

1.1 Aims of the project and structure

The aim of this project is to develop a data visualization tool to display how vehicles interact with each other and a particular environment as well as simulate a variety of traffic paradigms. This tool will be primarily developed in JAVA and will be divided into multiple layers with each layer having a specific objective. The overall purpose of the layers is to divide complex parts of the tool into simpler parts that will allow the team to program more efficiently. The team has decided that the tool will initially consist of the following five layers:

1. **Vehicle Layer** - this layer will consist of the various types of vehicles that will be given simple commands to follow and situations to react to.
2. **Map Layer** - this layer will be the part of the tool that displays the roads, roundabouts and other routes that a vehicle can interact with. This layer will not feature any vehicles
3. **Interaction Layer** - this layer will combine the vehicle and map layers. It will allow the team to test if a vehicle can successfully follow a certain route or not.
4. **Event Layer** - this layer will add events such as traffic jams, road emergencies, etc to the tool.
5. **Simulation Layer** - this final layer will involve the users selecting a range of maps and events to simulate a certain paradigm that they wish to model.

1.2 Strategy for achieving project aims

Each layer has a specific purpose towards the tool and is necessary that a layer is completed before advancing to the next layer. This approach is being taken to ensure that every layer has a strong foundation and has the absolute minimum amount of errors possible. The vehicle layer and map layer form the basic part of the tool therefore the team will focus on developing these two aspects first. If these two layers are not functioning properly then the interaction layer will not work as desired and will cause other layers problems in later stages of development. Through this we believe that it will be easier to catch errors or identify areas that need to further improved.

The event and simulation layers will serve as the advanced part of the tool and focus on meeting the main objectives of the project. These two layers will require more focus than the others and can only be developed when the interaction layer functions properly without errors. As the event layer will introduce the concepts of road emergencies and restrictions it will help the team make a more realistic traffic simulation engine. The simulation will be the last layer to be developed and will allow the user to vies various traffic scenarios and how they could play out.

Chapter 2

Project Organisation

When will the team work together and what tools will it use to work outside meeting hours?

The team will work together every Wednesday and will use Facebook Messenger to communicate and Team Viewer to work at home.

Who is the project coordinator and what is his role?

Mohammad Ali Syed will be the project coordinator and will be responsible for maintaining communication between all team members and organising the required deliverables and submitting them.

How will the project be divided between team members?

Task	Lead	Support
Vehicle & Map Layer Coding	Mushed Miah	Hesham Almulla
Interaction Layer Coding	Mohammad Ali Syed	Rahul Kothare
Event & Simulation Layer Coding	Alexander Akorita-Burkin	Mushed Miah
Report Writing	Rahul Kothare	Hesham Almulla
Presentations	Hesham Almulla	Alexander Akorita-Burkin

Table 2.1: Division of Key Project Tasks

The following table will be used to note team members contributions. Contributions will be measured through hours contributed in the report and number of features implemented in the tool. Each member should ideally contribute to every aspect of the project in one way or the other. The table shows in percentage how much each member will contribute.

Task	Ali	Alexander	Hesham	Mushed	Rahul
Vehicle & Map Layer Coding	10%	20%	30%	40%	5%
Interaction Layer Coding	40%	10%	10%	5%	30%
Event & Simulation Layer Coding	20%	40%	10%	25%	5%
Report Writing	10%	10%	30%	10%	40%
Presentations	20%	20%	20%	20%	20%
Total Contribution	100%	100%	100%	100%	100%

Table 2.2: Individual Contributions

This is an intial representation of how work will be divided between team members. The actual numbers might change through the course of the project.

How will team members assess each other?

Each team member will receive a mark from 0-20 from other members and the average of these marks will be the mark for project calculated to the nearest whole number. An example is shown below.

Grader	Ali	Alexander	Hesham	Mushed	Rahul
Grade by Ali		20	20	18	15
Grade by Alexander	18		18	18	20
Grade by Hesham	20	20		18	15
Grade by Mushed	20	20	15		20
Grade by Rahul	20	20	18	20	
Average Grade	20	20	18	19	18

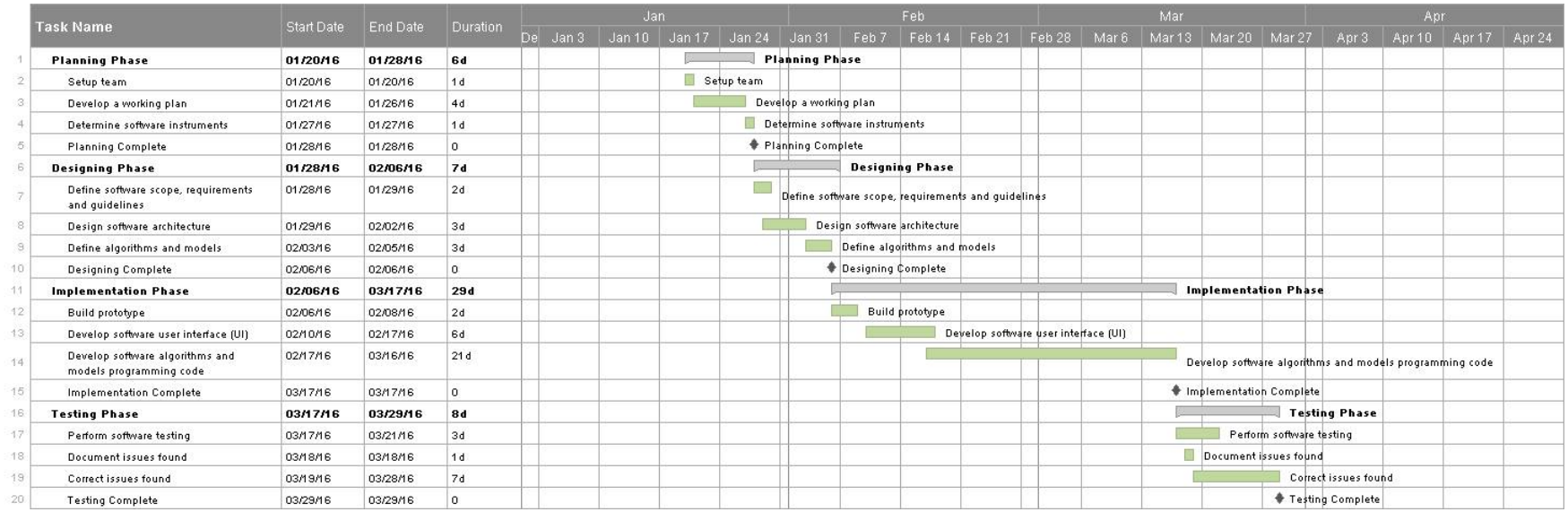
Table 2.3: Peer Assessment

How will potential conflicts be handled and resolved?

The most important aspect about team work is communication. Every individual idea or criticism will have to be communicated to every team member. We believe that every opinion should be respected and valued. If there is an unlikely situation of an extreme disagreement, the team will report this to the project supervisor.

What is the timeline of the project?

Shown on next page.



	Task Name	Start Date	End Date	Duration
1	**Planning Phase**	**01/20/16**	**01/28/16**	**6d**
2	Setup team	01/20/16	01/20/16	1d
3	Develop a working plan	01/21/16	01/26/16	4d
4	Determine software instruments	01/27/16	01/27/16	1d
5	Planning Complete	01/28/16	01/28/16	0
6	**Designing Phase**	**01/28/16**	**02/06/16**	**7d**
7	Define software scope, requirements and guidelines	01/28/16	01/29/16	2d
8	Design software architecture	01/29/16	02/02/16	3d
9	Define algorithms and models	02/03/16	02/05/16	3d
10	Designing Complete	02/06/16	02/06/16	0
11	**Implementation Phase**	**02/06/16**	**03/17/16**	**29d**
12	Build prototype	02/06/16	02/08/16	2d
13	Develop software user interface (UI)	02/10/16	02/17/16	6d
14	Develop software algorithms and models programming code	02/17/16	03/16/16	21d
15	Implementation Complete	03/17/16	03/17/16	0
16	**Testing Phase**	**03/17/16**	**03/29/16**	**8d**
17	Perform software testing	03/17/16	03/21/16	3d
18	Document issues found	03/18/16	03/18/16	1d
19	Correct issues found	03/19/16	03/28/16	7d
20	Testing Complete	03/29/16	03/29/16	0