



# Vehicle Intersection Control

McMASTER UNIVERSITY

Draft System Requirements

SE 4G06

GROUP 6

Alex Jackson  
Jean Lucas Ferreira  
Justin Kapinski  
Matthew Hober  
Radhika Sharma  
Zachary Bazen

# Contents

<b>Revisions</b>	<b>3</b>
<b>1 Project Drivers</b>	<b>4</b>
1.1 The Purpose of the Project . . . . .	4
1.2 The Client, the Customer, and Other Stakeholders . . . . .	4
1.3 Users of the Product . . . . .	4
<b>2 Project Constraints</b>	<b>5</b>
2.1 Mandated Constraints . . . . .	5
2.2 Naming Conventions and Definitions . . . . .	5
2.3 Relevant Facts and Assumptions . . . . .	5
<b>3 Functional Requirements</b>	<b>5</b>
<b>4 Nonfunctional Requirements</b>	<b>6</b>
4.1 Look and Feel Requirements . . . . .	6
4.2 Usability and Humanity Requirements . . . . .	6
4.3 Performance Requirements . . . . .	6
4.4 Precision Requirements . . . . .	7
4.5 Operational an Environmental Requirements . . . . .	7
4.6 Maintainability and Support Requirements . . . . .	7
4.7 Security Requirements . . . . .	8
4.8 Cultural and Political Requirements . . . . .	8
4.9 Legal Requirements . . . . .	8
<b>5 Project Issues</b>	<b>8</b>
5.1 Open Issues . . . . .	8
5.2 Off-the-Shelf Solutions . . . . .	9
5.3 New Problems . . . . .	9
5.4 Migration to the New Product . . . . .	9
5.5 Risks . . . . .	9
5.6 Costs . . . . .	9
5.7 User Documentation and Training . . . . .	9
5.8 Waiting Room . . . . .	9

## List of Tables

1	VIC Table of Revisions . . . . .	3
---	----------------------------------	---

## Revisions

Date	Revision Number	Authors	Comments
November 7, 2016	Revision 0	Alex Jackson Jean Lucas Ferreira Justin Kapinski Matthew Hoberg Radhika Sharma Zachary Bazen	N/A

Table 1: VIC Table of Revisions

**\*\*\* These headings to be double checked against template to ensure no topics missed \*\*\***

## 1 Project Drivers

### 1.1 The Purpose of the Project

The purpose of this project is to allow autonomous cars to identify and navigate intersections by providing an appropriate order to proceed through the intersection. Currently multiple autonomous cars arriving at an intersection at the same time have no decision protocol that will determine which car proceeds first through the intersection. **{{(From project goals)** VIC will allow autonomous vehicles to identify intersections and form a unanimous consensus of the order in which vehicles should proceed through an intersection. In addition, VIC will be able to dynamically handle changing scenarios at an intersection without running into deadlock or stalemate situations. To ensure safety, VIC will allow cars to navigate through the intersection only after a unanimous consensus has been made. }

### 1.2 The Client, the Customer, and Other Stakeholders

#### 1.2.1 Client

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

#### 1.2.2 Customer

Insert Text Here.

#### 1.2.3 Stakeholders

Insert Text Here.

### 1.3 Users of the Product

Insert Text Here.

## 2 Project Constraints

### 2.1 Mandated Constraints

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

### 2.2 Naming Conventions and Definitions

#### 2.2.1 Name Conventions

**TRK-#** - Track requirement code and number

**VHL-#** - Remote control vehicle requirement code and number

**ITC-#** - Intersection control requirement code and number

#### 2.2.2 Definitions

N/A

### 2.3 Relevant Facts and Assumptions

Insert Text Here.

## 3 Functional Requirements

This section is taken from IEEE

**TRK-1:** Track requirement 1

**TRK-2:** Track requirement 2

⋮

**TRK-3:** Track requirement n

**VHL-1:** Vehicle requirement 1

**VHL-2:** Vehicle requirement 2

⋮

**VHL-3:** Vehicle requirement n

**ITC-1:** Intersection control requirement 1

**ITC-2:** Intersection control requirement 2

⋮

**ITC-3:** Intersection control requirement n

## 4 Nonfunctional Requirements

### 4.1 Look and Feel Requirements

#### 4.1.1 Appearance Requirements

Insert Text Here.

#### 4.1.2 Style Requirements

Insert Text Here.

### 4.2 Usability and Humanity Requirements

#### 4.2.1 Ease of Use Requirements

Insert Text Here.

#### 4.2.2 Personalization and Internationalization Requirements

Insert Text Here.

#### 4.2.3 Learning Requirements

Insert Text Here.

#### 4.2.4 Understandability and Politeness Requirements

Insert Text Here.

#### 4.2.5 Accessibility Requirements

Insert Text Here.

### 4.3 Performance Requirements

#### 4.3.1 Speed Requirements

Insert Text Here.

#### 4.3.2 Safety-Critical Requirements

Insert Text Here.

#### **4.4 Precision Requirements**

Insert Text Here.

##### **4.4.1 Reliability or Availability Requirements**

Insert Text Here.

##### **4.4.2 Robustness or Fault-Tolerance Requirements**

Insert Text Here.

##### **4.4.3 Capacity Requirements**

Insert Text Here.

##### **4.4.4 Scalability or Extensibility Requirements**

Insert Text Here.

##### **4.4.5 Longevity Requirements**

Insert Text Here.

#### **4.5 Operational and Environmental Requirements**

##### **4.5.1 Expected Physical Environment**

Insert Text Here.

##### **4.5.2 Requirements for Interacting with Adjacent Systems**

Insert Text Here.

##### **4.5.3 Production Requirements**

Insert Text Here.

##### **4.5.4 Release Requirements**

Insert Text Here.

#### **4.6 Maintainability and Support Requirements**

##### **4.6.1 Maintenance Requirements**

Insert Text Here.

##### **4.6.2 Supportability Requirements**

Insert Text Here.

### **4.6.3 Adaptability Requirements**

Insert Text Here.

## **4.7 Security Requirements**

### **4.7.1 Access Requirements**

Insert Text Here.

### **4.7.2 Integrity Requirements**

Insert Text Here.

### **4.7.3 Privacy Requirements**

Insert Text Here.

### **4.7.4 Audit Requirements**

Insert Text Here.

### **4.7.5 Immunity Requirements**

Insert Text Here.

## **4.8 Cultural and Political Requirements**

### **4.8.1 Cultural Requirements**

Insert Text Here.

### **4.8.2 Political Requirements**

Insert Text Here.

## **4.9 Legal Requirements**

### **4.9.1 Compliance Requirements**

Insert Text Here.

### **4.9.2 Standards Requirements**

Insert Text Here.

# **5 Project Issues**

## **5.1 Open Issues**

Insert Text Here.



## **5.2 Off-the-Shelf Solutions**

Insert Text Here.

## **5.3 New Problems**

Insert Text Here.

## **5.4 Migration to the New Product**

Insert Text Here.

## **5.5 Risks**

Insert Text Here.

## **5.6 Costs**

Insert Text Here.

## **5.7 User Documentation and Training**

Insert Text Here.

## **5.8 Waiting Room**

Insert Text Here.