

# Railroad Signaling Block Design Tool

Kenneth Truex – [ktruex2012@my.fit.edu](mailto:ktruex2012@my.fit.edu)

Zachary McHenry – [zmchenry2011@my.fit.edu](mailto:zmchenry2011@my.fit.edu)

Christopher Diebold – [cdiebold2012@my.fit.edu](mailto:cdiebold2012@my.fit.edu)

Chad Mason – [cmason2011@my.fit.edu](mailto:cmason2011@my.fit.edu)

## **Faculty Sponsor**

Phillip Bernhard – [pbernhard@fit.edu](mailto:pbernhard@fit.edu)

## **Progress of current milestone**

Task	Completion %	Kenneth Truex	Christopher Diebold	Chad Mason	Zachary McHenry	To Do
Obtain Requirement Document From GE	100%	50%	50%	0%	0%	Ensure a full understanding of the “Shalls” associated with this project
Decide on IDE/Programming Language/Database Tools	100%	25%	25%	25%	25%	Select a language and IDE/Tools that mesh well together
Evaluate Selected Tools with Small Examples to Analyze Integration/Cohesiveness of Tools	100%	25%	25%	25%	25%	Also include the skeleton infrastructure in order to connect to a database
Begin Drafting Design of Program and GUI	100%	0%	0%	50%	50%	Create a basic GUI and sample code snippets.

## **Summary of Accomplished Tasks for Milestone**

### **1. Obtain Requirement Document From GE:**

At the conclusion of our second team meeting with Dan Ballesty, he informed us that he would sit down with the subject matter experts at GE and decide on what functionality they wanted the tool to provide them. Shortly after the meeting we received an email containing the formalized list of requirements for the project. The document includes five requirements.

### **2. Decide on IDE/Programming Language/Database Tools:**

At the beginning of our third meeting with Dan Ballesty, we reviewed the requirements document and held an open conversation as to which tools/IDE/programming language/database software would provide the greatest amount of ease throughout the project. The decisions that we made were:

- IDE: Visual Studio
- Programming Language: C#/.NET
- Tools: Windows Forms (For GUI), Photoshop for GUI design
- Database Tools: MySQL

### **3. Evaluate Selected Tools with Small Examples to Analyze Integration/Cohesiveness of Tools:**

As far as small examples and code snippets, we currently have working C# code that implements some of the basic classes that GE requires. We have a basic GUI created using Windows Forms with File and Display functionality. We also have a basic code sample in C# that will establish a database connection with a MySQL database and allow a user to enter queries.

### **4. Begin Drafting Design of Program and GUI**

With the help of GE professionals, we completed the SDP at the conclusion of our most recent meeting held on 2/14. We also put the finishing touches on both the GUI plan document, created in Photoshop, and the actual coded GUI.

## **Summary of Contribution of Each Team Member**

Ken: I created a C# project in Visual Studio 2013 to store the code associated with the GE algorithms used for the multiple calculations. I implemented a C# class called Physics.cs. In it are the algorithms to calculate the physical kinematic equations. I also implemented a C# class called GEAlgorithms. In that class is the algorithm to calculate the safe breaking distance of a locomotive. All of these have been presented and critiqued by Dan Ballesty at GE.

Chris: I created a Database connection class along with an interface to run SQL queries from. I am waiting on a Schema outline from GE on what data they want us to store in the database. To test the connection class I used the MySQL sample database and did a few basic queries outputting to the console. I created and implemented half of the Software Development Plan along with Chad. I presented it to Dan Ballesty from GE.

Chad: I worked with Chris to write the Software Development Plan. I began to take what Zach had designed for the GUI and make a basic working version as a test in C#. I also updated the website with the new documents.

Zach: I began designing the graphical user interface in Adobe Photoshop so that Dan Ballesty at GE could see what we were thinking in terms of GUI. Dan Ballesty then critiqued the design and gave insight to

more features to add to the GUI. After the GUI has been agreed on between Dan and our team, we will begin coding the GUI so that it can be used with the different algorithms that have been set up by Ken, Chris and Chad.

### **Plan for Milestone 2**

Task	Zachary McHenry	Christopher Diebold	Kenneth Truex	Chad Mason
Parsing the Database	0%	50%	50%	0%
Do a GUI Mockup and Present to GE	50%	0%	0%	50%

### **Summary of Milestone 2 Tasks**

#### **Parsing the Database:**

Take our skeleton infrastructure of a database and add to it the functionality of information retrieval. Set it up so that the user can enter query commands and actually retrieve information stored in the database.

#### **Do a GUI Mockup and Present to GE:**

Take our design documents of our GUI that we created in Photoshop and implement it into C# code. After completing the implementation, we will present it to Dan Ballesty for review and critique.

### **Sponsor Feedback on Each Task for the Current Milestone**

**1. Obtain Requirement Document From GE:**

**2. Decide on IDE/Programming Language/Database Tools:**

**3. Evaluate Selected Tools with Small Examples to Analyze Integration/Cohesiveness of Tools:**

**4. Begin Drafting Design of Program and GUI:**

Sponsor Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Sponsor Evaluation**

Kenneth Truex	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
Christopher Diebold	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
Zachary McHenry	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
Chad Mason	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10

Sponsor Signature: \_\_\_\_\_ Date: \_\_\_\_\_