★ N   **CPE656TL-94**   Created by Corey 12 Nov 2015 01:17

Incorporate Feedback from Dr. Kulick 11/11/15

[Overall]
Rename to 'Team Operation Document' To 'Process Description and Configuration Management Document'
Documents are not standalone. Each document should be clear about how everything works.
Schedule needs to be updated for SRS changes
Distinguish between ground truth geometry data (data that we collect from measuring with range finders) from data represented as estimates : Only use ground truth geometry data. Update references to 'Track Layout' to refer to the representation of the track based on the data measured by the team and stored in the database. Remove any involving loading a track layout from the GUI. Instead let's assume for now that there is only one track and that is always displayed on the screen of the Train Monitor Position Window.
Rename / Refer to the "System Design Specification (SDS)" to the "System Design Document (SDD)"

[Test Plan]
Mention in plan our intent to use synthetic data for testing:
I think we now already mention this in Arguments for Test. We basically need to be more descriptive of it. Mention that this 'Simulated Data' Is Synthetically Generated to Exercise Different sections of Code in Test.
Make clearer that we mention that it will be in 90 degree increments
We need to make clearer how we will verify train movement using video.
Still need more details on how video will verify position

[SRS]
Review should and shall statements in the SRS.
Replace Track Marker term with "Current Sensing Track Occupancy Detector" for the Original System and "RFID Tag" for the system using Train Trax.
Update the Scope with a description of workflow done by Train Trax to do its work. (Describe how Train Trax will monitor train movement and control switches)
Remove all Use Cases Except Monitor Train Position and 'Control Track Switch'.
Check all requirements to see if they are testable. If they are a parent requirement, Add a note to its description. That basically says ("Tested Through Child Requirements"). [His specific complaint was that some requirements were definitely not testable, however it was not clear from the formatting the hierarchy of the requirements.
Reword all requirements so that it is clear to the reader how the system will behave and interact with the train system.
Create a figure that describes the Positive Train Control Test Bed in the terms that we are using.

[Prototype]
Need to collect RFID Reader and accelerometer measurements
Hardware update needed by next week.

[Miscellaneous]
Assuming that train is not moving faster than 2 in/s.

Priority: **Normal**
Type: **Task**
State: **Submitted**
Assignee: **Rashad**
Subsystem: **No Subsystem**
Fix versions: **Unscheduled**

Affected versions: **Unknown**
Fixed in build: **Next Build**
Estimation: **?**

Updated by Corey 24 Nov 2015 18:57

Comments (6)　| 　History

Corey　—　12 Nov 2015, 01:39

I have already checked in a PowerPoint Image Sketch of the Positive Train Control Test Bed to help with the SRS and SDD visualization of exactly what Train Trax is interacting with.

Corey　—　12 Nov 2015, 01:43

Attached is the current representation of the Positive Train Control Test Bed.

Corey　—　12 Nov 2015, 15:16

Hey Guys. Based off or Dr. Kulick's feedback, he looks confused about our plans for the track layout. I was thinking of possibly simplifying that process. That would save us time in docs, requirements/design/test. We can always add it back if we need to. Or have it as the scope for another project for another team. Basically, instead of doing the track layout setup stuff from the GUI, we just have as an assumption that the track geometry data is pre-loaded in the database at the time of operation of Train Trax.

That would leave us with only the monitor train and control track use cases.

We can then detail in the SDD how that data is loaded into the database. This means that the track geometry data should be enough for us to basically create a graph that represents the track. That means that on top of everything else, we will need to create an adjacency list or matrix (recommend list). to link each point to each other so that we can create a graph of the track.

Track Geometry Data To Date:
For a given point:
ID,
Coordinates of Reference Point 1
Coordinates of Reference Point 2
Distance From Reference Point 1
Distance From Reference Point 2
Orientation Point Distance From Reference Point 1,
Orientation Point Distance From Reference Point 2,
ID of Track Section
Is Switch ? (True/False)
Adjacent Points (Comma, separated list: or separate table)
RFID Tag ID

Also, in the Scope section. We can add text that describes the general flow of how Train Trax is to work including the specifics like using IMUs and RFID tags.

SDD:

Include a description of the organization of tables that will be used inside the database to store the data.

Corey — 12 Nov 2015, 15:32

STP:

Here are the details I had previously outline for using video to test the accuracy of the train position.

Video Capture

Very Visibly mark multiple locations of the train train

Have previously recorded the distance between marks.

Fix a camera in position to observe movement of the train above a partition of the track

Prepare Motion Detection Unit to log measurements of interest.

Start camera

Start train from a known point.

Stop train after it reach the final marker.

Stop camera

Stop train logging.

- We do not need the field of vision of the camera to cover the entire track to verify that it is running correctly. We only need to record for a partition of the track that is large enough to be representative of the track. What is appropriate, would need to be agreed upon by the customer and team. An initial estimate would be at least a 3 ft x 3 ft section of the track.

A team member will have to visually inspect the movement of the train to create a dataset that can be used for compare against the information logged in the Motion Detection Unit.

We can also mark the top of the rail car where the RFID reader is located so that it is visible to see when the RFID reader crosses the (also Visual Marked) RFID Tag.

As far as 'visually' marking things, this will basically be highly reflective stickers that are placed onto the track under the RFID Tags.

Based on Dr. Kulick's concerns. I think we may need to also plan for Plan B for verifying out accuracy and including in in the document:

Listen for LOCONET Messages from the Train Controller for when the test train enters' exits a section of track. We should have markers at the entrance / exit of sections of track so that we can use that as additional data to correlate time between the observations of train movement from video and the measurements reported by the Motion Detection Unit

Rashad — 23 Nov 2015, 03:58

This sounds fine. I must have missed this was doing my surgery. I'm confused as to what all currently needs to be changed with this issue?

Corey — 24 Nov 2015, 18:57

This is the parent issue to track all of the feedback from Dr. Kulick. I have split everything he requested into a per-document level issue. Most of these changes are actively being worked under child issues.