Gateway 2 Runthrough Notes

**Gareth**

- Prototying wooden bridge, using motors

- Rebuilt using foam, will be fit to DaNI bot

Capability (2): Demonstrating traversing complex environment

Future Plans: Audio system, add directivity with more mics

Capability (1): Audio localisation

**Rob**

- Arm working with Xbox Controller,

- Integrating Tri-track & Arm Arduinos to work as a holistic system

Capabilities(3): Retrieving fuel cell

- Working with RPi camera to know when to start & stop turning knob

Capabilities(4): Manipulation of fuel cell centre

Future Plans

- Want to solve power demands & storage

- Work on getting depth information with IR or US w/grabber to retrieve fuel cell safely

Capabilities(5): Careful handling

**Joe**

DaNi: Can get depth information from Kinect in one place & in a circle.

Realtime RIO sends data to LabVIEW computre which does algorithm

Lots of system integration needed with overhead system, control center

Future Plans: Get maths working

Lower sensitivity for controls with DaNI for careful handling.

As a failsafe, the DaNI can be controlled with Xbox controller & Kinect with computer

Capabilities meeting:

1,2,5,6

**Eddie**

- Made some progress installing and creating ROSforLABVIEW link between node & master

Introduction (Eddie will fill)- GW1 - GW2

- Will discuss how progress has been made on 5 capabilities except careful handling.

**Rachel**

- Tri Track now makes movement decision based off the obstacle distance difference sensors detect.

Capabilities:

Progress has been made on (2): Moving across complex environments

Future Plans

- Integrate Tri-Track control with the robot arm, by interfacing the 2 arduino-based hardware & software together.

- Physically fit the arm on top of the Tri-Track, this requires load & space management.

 <-**Integration with Rob's arm.**

**Themba**

- OHS (OpenCV): Progress has been made, OHS now identifies robots by their colour & plots their cartesian co-ords within frame. This can be normalised to metres once the frame area is known.

- ROS: Integrating with the 2 arduinos, RPi, LabVIEW PC & DaNI RIO. Will mostly be used to allow comms between the LAB & OHS for the A\* algorithm & to send image arrays to CC for faster processing

- Control Centre (CC): Frames will be compared for green & red intensity, the green frame will be matched to Knob turn interval **Requires integration with Rob's arm**

- Find fuel cell: RPi with PiCamera searches on the Tri-Track for the fuel cell <- needs integration with Rob for depth info.

All capabilities have been advanced but (5), none of these systems will meet (5), that is handled by other sub-systems.

Future Plans -

- Integrate the OHS more with DaNI **Requires ROSforLABVIEW work w/ Joe&Eddie**

- Fully implement Fuel Cell OpenCV algorithm scripts