Scope:

The FIT/CSRR is a mobile search and rescue vehicle, capable of being wirelessly controlled by human operators, located on the perimeter of a debris field that has been created as the result of some natural or manmade disaster. The FIT/CSRR will have the capability of traversing the interior of the debris field, having a highly varied terrain, littered with obstacles of all sizes, shapes, textures, etc. The FIT/CSRR will have the capability of providing an optical camera feed, back to the operators, in both the human visual, and IR frequency spectrums, to be used for both vehicle navigation and search operations. The FIT/CSRR will have the capability of two way audio communication between the FIT/CSRR operators and any human survivors that have been located. The FIT/CSRR will have the capability of providing positional information back to the operators to aid in excavation and recovery activities.

Hardware/Software Breakdown:

This robot is controlled using a Raspberry Pi 2 Model B. It acts as the microcontroller for the motors and camera, while also handling the audio and video from the workstation. Data is sent from the vehicle to the workstation using a RF link.

Figure 2 (top): Interfaces between the hardware and software on the robot.

Figure 3 (right): Hardware layout for the interior of the vehicle.