

Status Report #1 - 02/16

This week I mainly worked on completing research for human detection using OpenCV, including choosing the right hardware and software libraries for the task, and creating the block diagram for the software system. Figure below shows a block diagram that I created depicting the robot's response to different signals from the thermal camera as well as the ultrasonic and weight sensors.

Since I don't have much experience with OpenCV or a raspberry Pi (I have mostly used machine learning algorithms for object detection), I read the OpenCV documentation on contours to make sure I could use that with thermal camera imaging. I also ordered the necessary Raspberry Pi version for running OpenCV software. Figure below shows a tentative flow chart for detecting a red blob in the thermal camera image.

At this point, I am right on schedule and ready to write code for detection of a red object in a given image using OpenCV. Since the Raspberry Pi and Thermal sensor would not be arriving until next week, the main deliverable for next week would be well-written Python code that can detect a red blob in an image, and return whether it is in the left, right, or center of the image.

Left: Block Diagram for the Software System (Note: the thresholds for spinning right would be calibrated later in the semester); Right: Flow chart for "human" detection

