# Personal Accomplishments

Since project began, I personally have interviewed three subject matter experts who were all first responders. These interviews were conducted other the phone and provided valuable insights into the problem we are trying to solve. I, along with the rest of my teammates have also conducted research by attending active shooter training. I have also met with Victor Vedovato at 10 Imaging, in order to get some suggestions about the technology we should use. I contributed to the problem definition assignment by writing the first draft of our problem statement and contributing points about our scope and assumptions to the presentation. I helped prepare a presentation for our meeting with the Air Force Research Lab (AFRL) by preparing slides summarizing what I had learned from my interviews, what technologies we were considering using, and our planned schedule for the project. Michaela and I have tested a prospective human sensing technology.

I have been in contact with a DIY radar expert who provided us with some advice on our own radar design before ultimately advising that we buy an off-the-shelf radar board. I have also been in contact with Xethru who makes a radar module designed for presence detection. We are considering buying their development board. I received some data about their signal attenuation when used through walls, and it appears the Xethru will work at least through thinner building materials. I also was advised that we will need to write our own algorithm for detecting targets from a moving platform.

# Planned Activities

For the next four weeks, I will help my teammates decide which product we want to order. I will order samples. I will also test the samples that we order. This will involve reading the sensor’s data sheets, constructing circuits to test them with, performing these tests, collecting data, and documenting the results. I will also be preparing a slide show for our Preliminary Design Review (PDR) with AFRL. This will involve assembling the documentation of all the work we have done and preparing it in a presentation. I also plan to work on the third team status report, our reflection of the design briefing, my third individual status report, our concept selection paper, our design review slides, our high-level testing plan, and our technical analysis.

# Personal Risks, Challenges, and Issues

My personal risks are that the sensors will not work well enough for us. We need sensors that can detect a human from several feet away through solid material. The risk is that the sensors we purchase will not be able to do this. My current challenge is getting the first sensors we ordered to work as they should. Currently, we are researching a number of options before ordering a sensor. We have narrowed our search down to 2 sensors and will make a selection on Monday. After that we will order the products and, after we receive them, I will quickly move on to testing these sensors to see if they work appropriately.

# Plan to Mitigate Risks

I plan to mitigate this risk by (a) testing the sensors early so there is plenty of time to resolve problems and try new sensors before it becomes a major concern. I also plan to consult manufacturers and faculty for advice regarding the issues with the sensors that we may have. For example, I have gotten information from a radar/RF engineering expert and from the manufacturer of a radar sensor module.