

Voice of Customer Assignment

ECE 480 Design Team 3 - Android Enabled Programmable Camera Positioning System

Austin Fletcher

Ryan Popa

Christopher Sigler

Yan Sidronio

Jeremy Iamurri

Project Description:

Design Team 3 has been tasked with developing an Android enabled GPS-based camera positioning system for the Air Force Research Laboratory (AFRL). This entails constructing a motorized camera mount for an approximately 19lb infrared camera, that is controlled by an Android smartphone. This system should be able to point at any target GPS coordinate (latitude, longitude, and altitude) on a pre-programmed script to a high degree of accuracy (as high as a smartphone's sensors permit) and reliability. In order to do this, the system must be able to detect its own location and orientation, calculate the necessary orientation so that the infrared camera focuses on its target location, and control the motors in the mount to rotate to that orientation. The phone must then signal the camera to capture an image, and take one itself as context imagery.

Opening Question and "Ice Breaker"

Can you tell us a little bit about the AFRL and your areas of research?

Key Question #1

How do you expect to use this system?

2 Probes:

What environment will it be placed in?

How will the system be mounted?

Key Question #2

What range of motion do you expect this system to have?

2 Probes:

So you expect this to rotate _____, how quickly do you expect this to rotate through

that range?

How accurate should this be?

Key Question #3

What capabilities of the phone do you expect to be used?

2 Probes:

How will GPS coordinates be communicated to the phone?

How will data from the infrared camera and phone be retrieved, and what context data should be provided from the phone?

Closing

This meeting has been very beneficial for us, is there any additional important information we need to know that you would like to clarify?