Jonathan Greenberg Embedded Linux

Progress Report

The project my partner and I are working on involves taking still photographs using a Raspberry Pi Camera Module through a web interface. This web interface allows us to control the direction the camera faces on a single plane, meaning that it can rotate 360 degress left or right. After taking a picture, we need to display the images via a web interface. Over the last few weeks, we tried to get a grasp on how the Camera Module works and how to display the images on a web interface. The first thing we did was tinker around with the camera. Using Raspistill, we were able to take still photographs successfully without any problems. As we delve down into the functions of Raspistill, we found that we can change a lot of settings for the camera including: brightness, sharpness, contrast, and flipping the image 180 degrees in case the camera is upside down. After figuring out how the camera worked, we needed to figure out how to display the images on a web interface. To do that, we used Flask and an html format to display the images. We also created a crontab to take picture as a test to make sure that our web interface was displaying all the images taken. Despite some minor setbacks, we managed to get the web interface to work. This is all the work that we’ve managed to complete over the past few weeks.

Since most of the software has been completed, the next couple of weeks has to focus on the hardware portion of the project. We still need to figure out how to build a mechanism that can physically rotate the camera. We haven’t really looked at the Pi Servo Hat provided to us yet but that would probably be our starting point. After we develop the mechanism, we would also need to update our web interface so it can control the direction of the camera. I feel that the hardest part would be figuring out how to implement the different angles the camera could move in the software. An idea we came up with is maybe we would only have the camera move at a small specific amount of angles: 90 degrees, 180 degrees, 270 degrees, and 360/0 degrees. Having only a small set of possible movements will make it much easier to implement in our software. The software portion of the assignment was relatively painless for us as we both have a good amount of experience programming. I had a little more experience with web programming so I did most of the web-based work while my partner worked on the getting the camera to work. Unfortunately, neither of us have much experience working with hardware, let alone physically building something so constructing the mechanism for the camera will be the toughest part. Though building the mechanism will be difficult, it will give us great experience working with hardware. With about 4 weeks to go, the first 2 weeks will be dedicated to building our turning mechanism, while the final 2 weeks will be dedicated to updating our web interfaces capabilities and finalizing the project.

Group Members/Contributions:

Jonathan Greenberg – Programming the web interface

David Furfaro – Installing the Camera Module and programming all of its functions.