EPED2 Group 10 Final Project Proposal

For our final project, we propose an accelerometer controlled camera gimbal. The gimbal will be controlled directly by the user via the accelerometer module. The user will be able to see the camera feed in the Matlab GUI window. They can the tilt and roll the accelerometer to change their field of view. The app itself will consist of a viewing window for the camera feed, a start/stop button, a sensitivity adjustment control and a lockout button to keep the camera pointed in the current direction regardless of accelerometer input when selected. The gimbal itself will consist of two servos and a camera all connected with 3D printed parts.

This app will be useful for simple position adjustment of a remote camera. For example, a security camera mounted on a high ceiling would be difficult to adjust without remote adjustment such as this proposed project.

The proposed project includes many technical challenges such as motor control via Matlab. Motor control is not something that we have discussed in class. We are planning on implementing motor control using an Arduino and the ArduinoIO package for Matlab. Another challenge will be streaming the live video from the camera to the Matlab window; we plan on using a Webcam object to do this.

