

# ACS Autonomous Camera Slider



## Overview

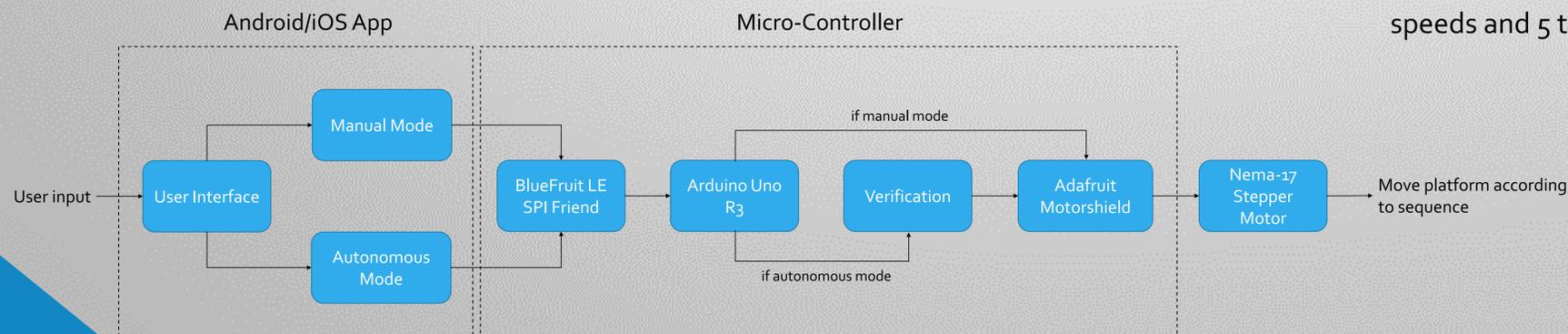
The Autonomous Camera Slider (ACS) is a system that gives amateur videographers a low-cost solution for shooting video pans. This system allows users to attach a camera to the platform and control it via an app on their Android/iOS device. The app includes two modes, Manual and Autonomous, which give the user the ability to control side-to-side movement of the camera across the rails.

## Problem

Amateur videographers want to produce quality video, but often can't afford expensive equipment for production.

- Difficult to hold the camera steady
- Post-Production effects aren't always effective
- Current Motorized Sliders are over \$1,000
- Motorized add-ons are over \$600

## System Diagram



Jim Jowers

## Design & Methodology

### Mechanical

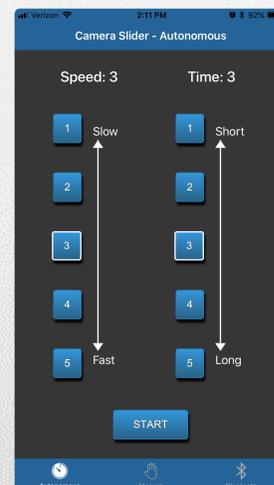
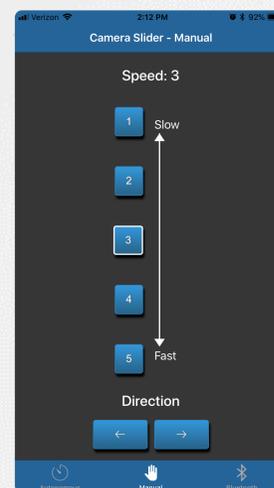
The camera is attached to a platform, which glides on carbon fiber rails using roller bearings. The endcaps house the electronics, motor, and the pulley system. The system can be mounted on two tripods or placed on a surface using adjustable feet. The camera platform and end caps are constructed using 6061 Aluminum, which provides a lightweight and stable frame.

### Electrical

The electrical components were chosen because they are inexpensive and easily accessible. The Arduino Uno R3, Adafruit Stepper Motor Shield V2, and the BlueFruit SPI Friend are used to control the stepper motor and connect to the app. The Nema-17 stepper motor provides 40Ncm of holding torque to smoothly move a camera of up to 5lbs.

### Software

The Android/iOS app allows the user to control the speed, direction, and time duration of the camera slider. The app connects to the ACS via Bluetooth pairing, provided in the app setup. There are two modes, Manual and Autonomous. Manual mode gives the user 5 speeds and two directions to choose from. Autonomous modes gives the user 5 speeds and 5 time durations.



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