Plant Music System with ADS1115 (No Amplifier)

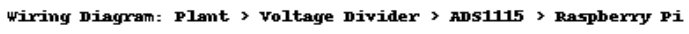
This setup enables a Raspberry Pi to read plant bio-signals using an ADS1115 analog-to-digital converter, convert those signals to MIDI, and generate ambient music in Pure Data (PD). The system also streams video from a Pi Camera to YouTube using FFmpeg.

Required Components

- Raspberry Pi 5 (Vilros Kit, 8GB recommended) - ADS1115 ADC Module (I2C) - 2 x 1M Ohm resistors (voltage divider) - Plant clip/sticker electrodes - Arducam Camera Module 3 with IR LED boards - MicroSD card, power supply, optional Bluetooth speaker

Wiring Steps

1. Connect one plant lead to GND. 2. Connect the other lead to the midpoint of two 1M Ohm resistors in series between 3.3V and GND. 3. Feed the midpoint voltage to A0 on the ADS1115. 4. Connect ADS1115: - VDD to Pi 3.3V - GND to Pi GND - SDA to Pi GPIO2 (SDA) - SCL to Pi GPIO3 (SCL)



Software Stack

- Raspberry Pi OS Lite - Python 3 with: - adafruit-circuitpython-ads1x15 - mido and python-rtmidi (for MIDI) - Pure Data (Vanilla) - Bop patch: https://github.com/zealtv/bop - FFmpeg for streaming - systemd to autostart

Startup

Use the included systemd service to autostart plant_midi.py and stream.sh on boot.