Team 14 Project Ideas

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Project 1: LoRA DAQ Boards (Preferred Choice)

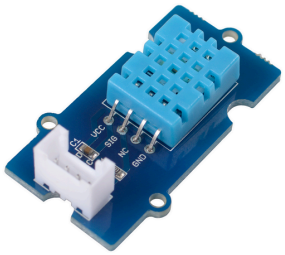
A brief project description of the idea; i.e., the concept of operation

For this project we would be creating a device to collect data from environmental sensors for field research applications and use a LoRA radio module transmit data to a central gateway.

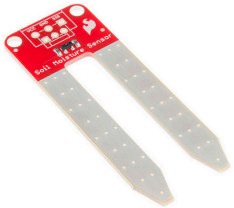
List the sensor(s)

ADS1115 16bit adc, I2C header to support following:

* Temp and humidity sensor DHT11



* SEN-13322 soil moisture sensor



List the controller(s)

LoRA Transceiver & MCU: Wio-E5 Wireless Module - STM32WLE5JC, ARM Cortex-M4 and SX126x embedded, supports LoRaWAN on EU868 & US915

List the actuator(s)

CP2102 USB to UART bridge (for USB interface)

On-board LoRA TX module

LoRA Antenna (Seeed 113070002)

Project 2: DRA818V Walkie-Talkie

A *brief* project description of the idea; i.e., the concept of operation

A Walkie talkie for two way radio communication using the DRA818V transceiver module. The module would use the VHF Band for communication.

List the sensor(s)

Microphone

Keypad input

DRA818V transceiver module

List the controller(s)

Microcontroller (eg. stm32g4)

List the actuator(s)

Speaker

DRA818V transceiver module

Project 3: Tunable PID Controller for lever position

A *brief* project description of the idea; i.e., the concept of operation

A tunable PID controller that controls the position of a lever arm to match a user-defined set point. The 'tunable' part meaning that the user has the ability to set the three PID coefficients via Rotary encoder

List the sensor(s)

Rotary encoder (eg. KY-040)

List the controller(s)

Microcontroller (eg. stm32g4)

List the actuator(s)

Motor Controller (eg. DRV8304)