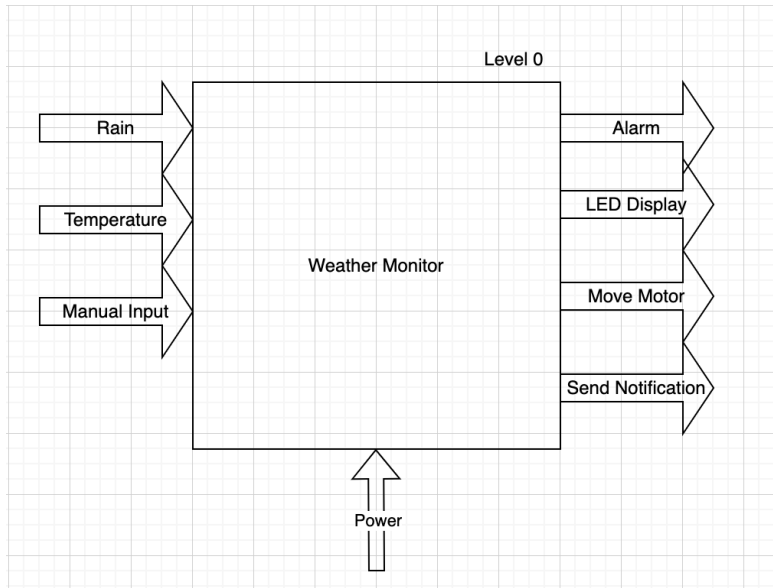
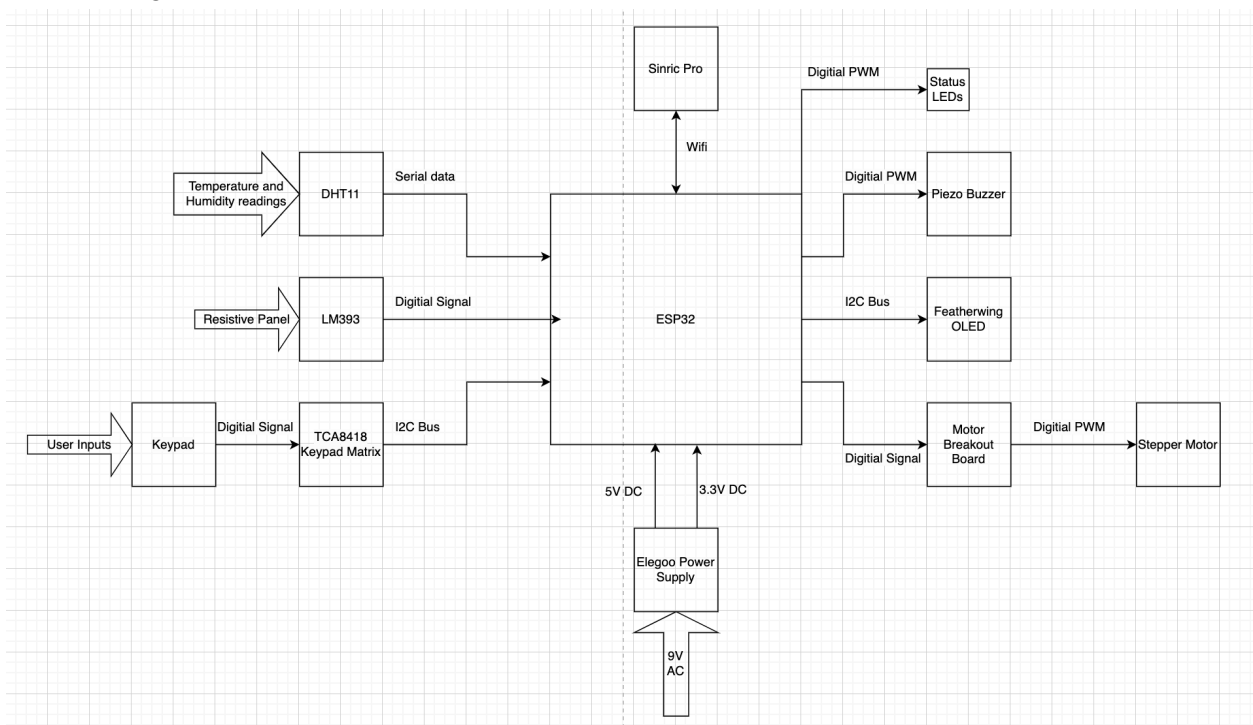


Team 4
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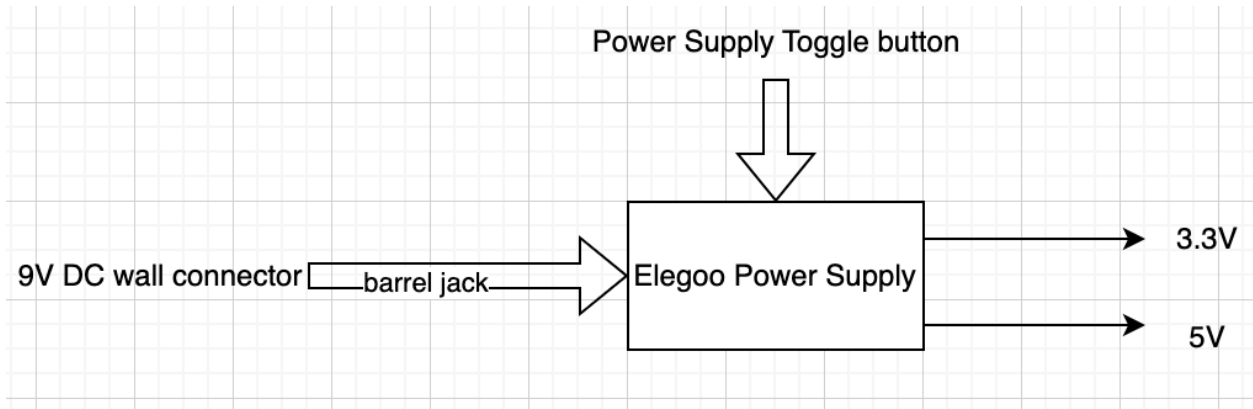
Level 0 Diagram



Level 1 Diagram (Overall)

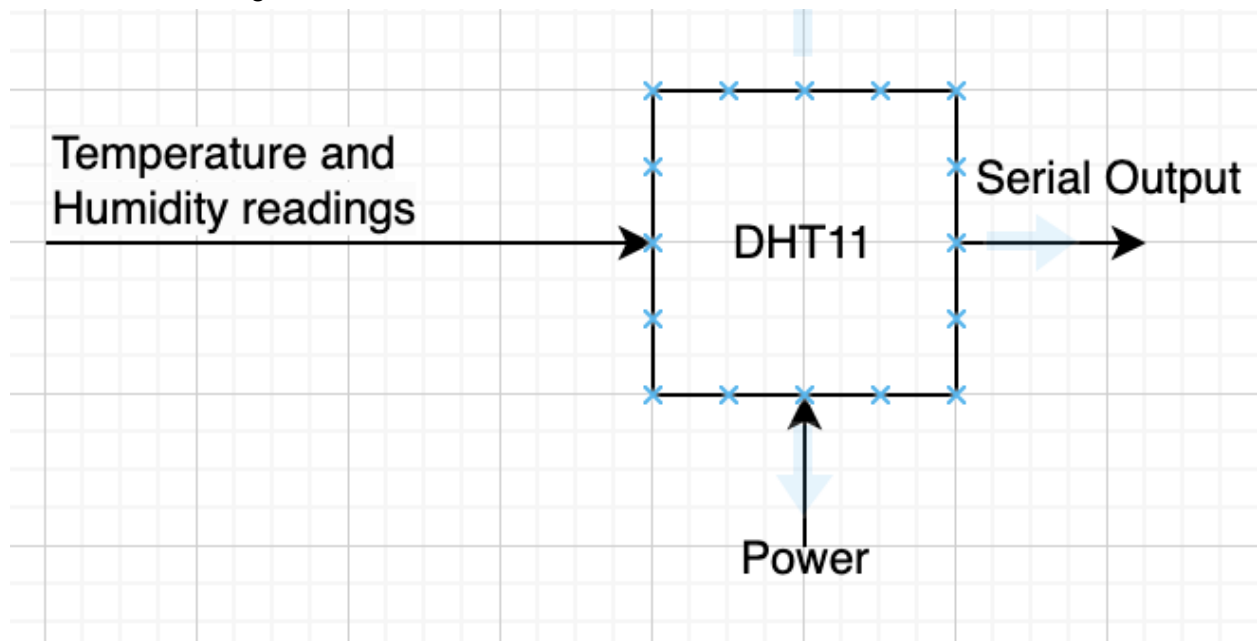


Power Supply Level 1 Diagram



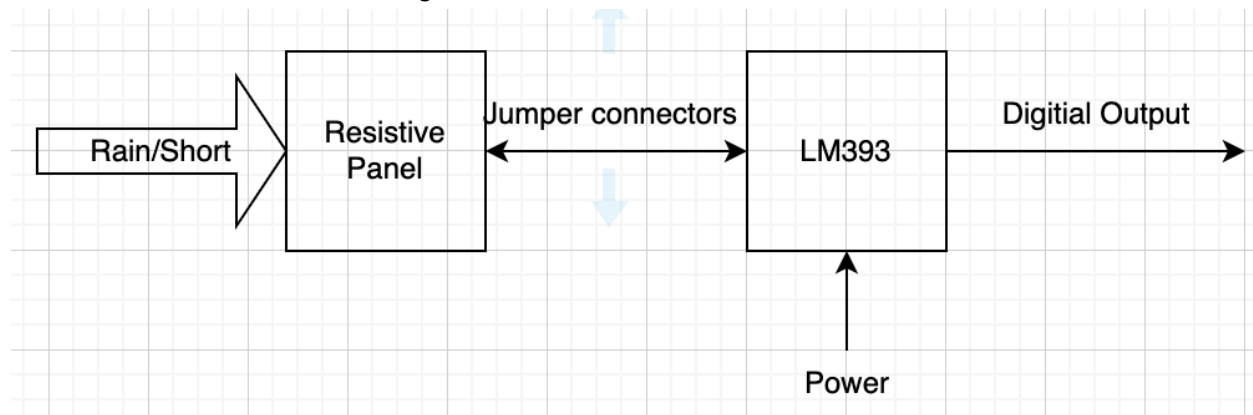
Module	Power Supply
Inputs	9V DC: Wall adapter with a barrel jack that is plugged into the power supply Toggle button: A push switch to turn on/off the entire power supply
Outputs	3.3V DC 5V DC
Functionality	It accepts 6.5-12V DC or USB input and has two independent channels that are configurable to output 3.3V or 5V DC. Can output current up to 700mA.

DHTxx Level 1 Diagram



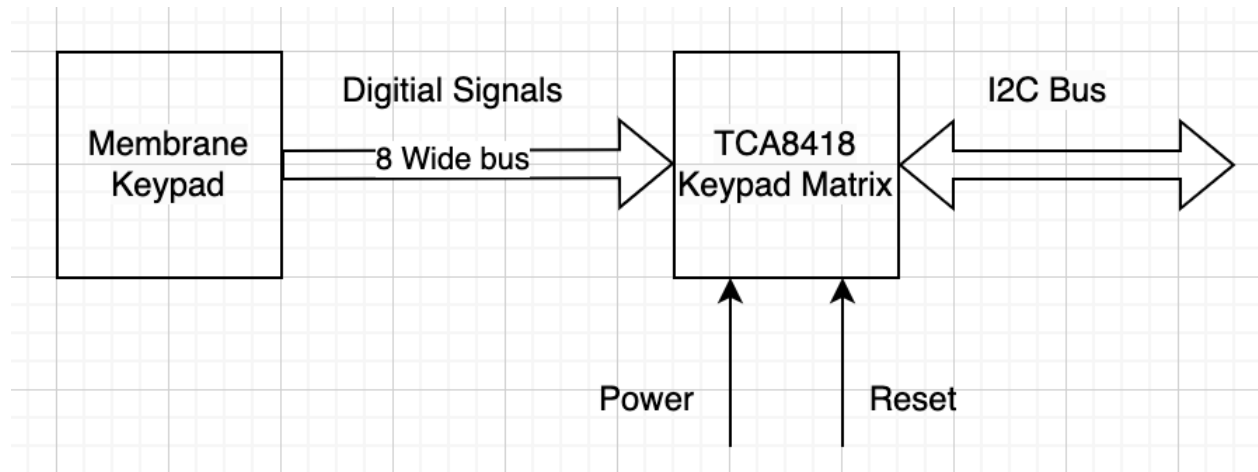
Module	DHT 11
Inputs	Environmental readings: temperature and humidity levels Power: 5V DC
Outputs	Digital signal: Serial output with a peak of 5V.
Functionality	Measures the temperature and humidity of nearby air, and sends data back through serial communication with the microcontroller. Requires a 5k pullup resistor on the data line.

LM393 / Rain sensor level 1 diagram



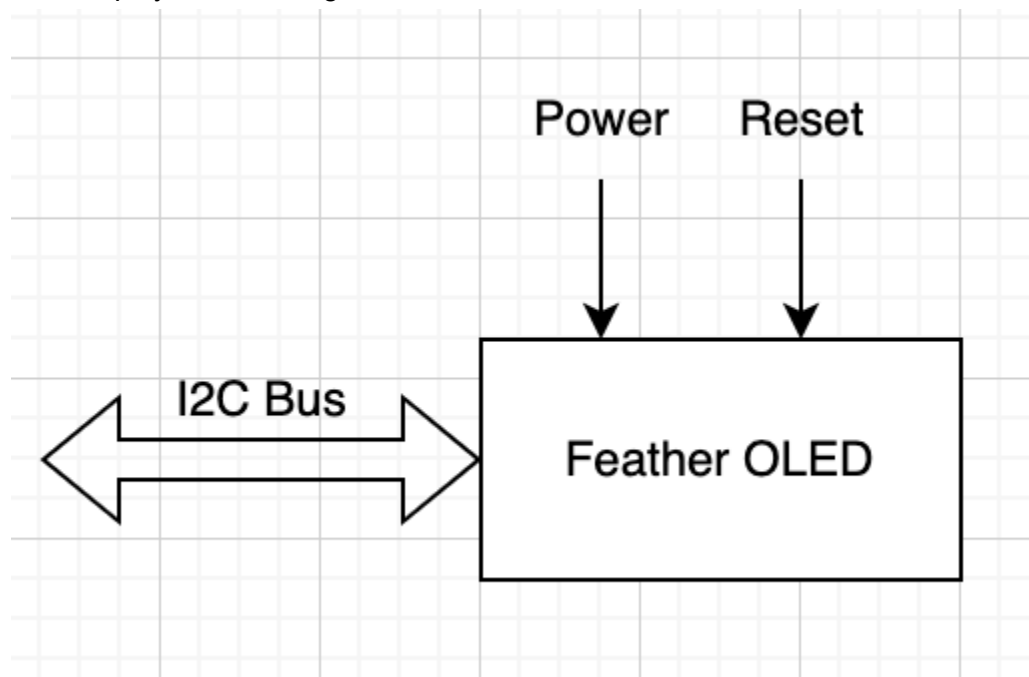
Module	LM393 + Rain sensor
Inputs	Voltage difference on resistive panel Power: 5V DC Potentiometer: built-in potentiometer that can adjusted to change the sensitivity/transition region of the digital output
Outputs	Digital signal: peak of 3.3V
Functionality	The resistive panel has two strips which are at different voltage levels. When it rains on the panel, a short is created between the strips, decreasing the voltage difference. The LM393 detects this difference and will output a digital signal if it is above a certain threshold. A 0 signifies it is raining while a 1 signifies that it isn't raining.

Keypad Level 1 Diagram



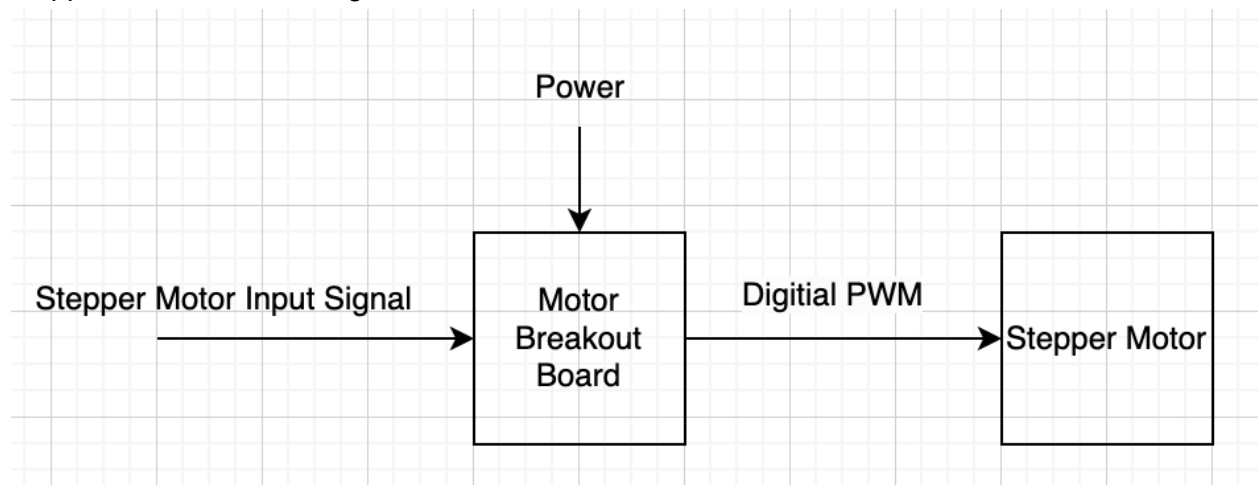
Module	Keypad Matrix breakout board
Inputs	Digital Signals: the row pins and column pins of the membrane keypad Power: 5V DC Reset switch
Outputs	I2C: Sends data about row and column pins to ESP32
Functionality	Used as a port expander since there were not enough pins available to be allocated to the keypad directly. It sends information about the row and column pins over I2C back to the ESP32. Has built-in 10k pullup resistors on SDA and SCL and is shifted to work with 3-5V logic.

LED Display Level 1 Diagram



Module	FeatherWing OLED display
Inputs	I2C bus Reset switch Power: 3.3V DC
Outputs	OLED display updates visually
Functionality	Takes instructions/data from I2C and updates display accordingly. Should display temperature and humidity levels Has 2.2k pullup resistors on SDA and SCL, with 3V logic.

Stepper Motor Level 1 Diagram



Module	Stepper motor breakout board
Inputs	Stepper Motor input Signal: digital signal containing the sequence of inputs to make the stepper motor take 1 step. Power: 5V DC
Outputs	Digital PWM: Digital signal which makes the stepper motor take the step
Functionality	The breakout board takes the input signals from the ESP32 and uses them to control the stepper motor. The voltage and current are supplied to the breakout board from the power supply, not the ESP32, which is then delivered to the stepper motor according to the input signals.