

eT

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Sheet: Pump
 File: pump.kicad_sch

Title: Plant Bot

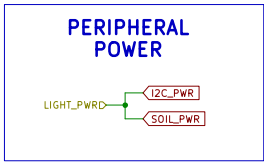
Size: A3 Date: 2025-01-22
 KiCad E.D.A. 8.0.7

Rev: F
 Id: 6/6

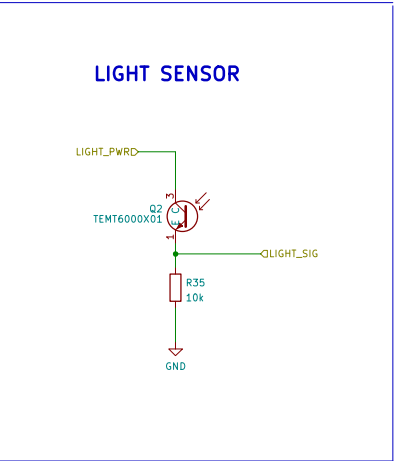
PERIPHERAL POWER

```
graph LR; LIGHT_PWR --> I2C_PWR; LIGHT_PWR --> SOIL_PWR;
```

The diagram illustrates the peripheral power configuration. A green line labeled `LIGHT_PWR` branches into two red boxes: `I2C_PWR` and `SOIL_PWR`.



LIGHT SENSOR



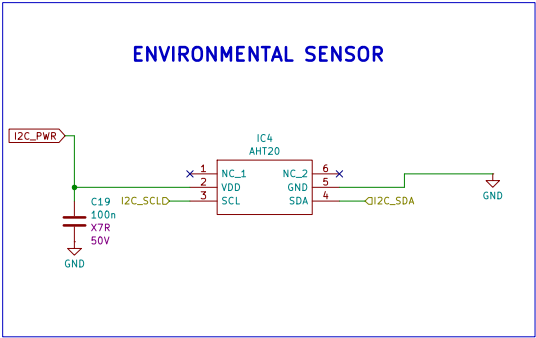
ENVIRONMENTAL SENSOR

The diagram illustrates the electrical connections for an environmental sensor module. The central component is the AHT20 IC (labeled IC4), which is a digital temperature and humidity sensor. The connections are as follows:

- Power Supply:** The I2C_PWR pin is connected to the VDD pin (pin 2) of the AHT20 IC. A 100nF capacitor (C19) is connected between VDD and GND. A 50V surge protection diode (X7R) is also connected between VDD and GND.
- Signal Lines:** The I2C_SCL pin is connected to the SCL pin (pin 3) of the AHT20 IC. The I2C_SDA pin is connected to the SDA pin (pin 4) of the AHT20 IC.
- Grounding:** The GND pin of the AHT20 IC is connected to the common ground. The I2C_SDA line also has a pull-up resistor (indicated by a green line to GND) to ensure proper signal levels.

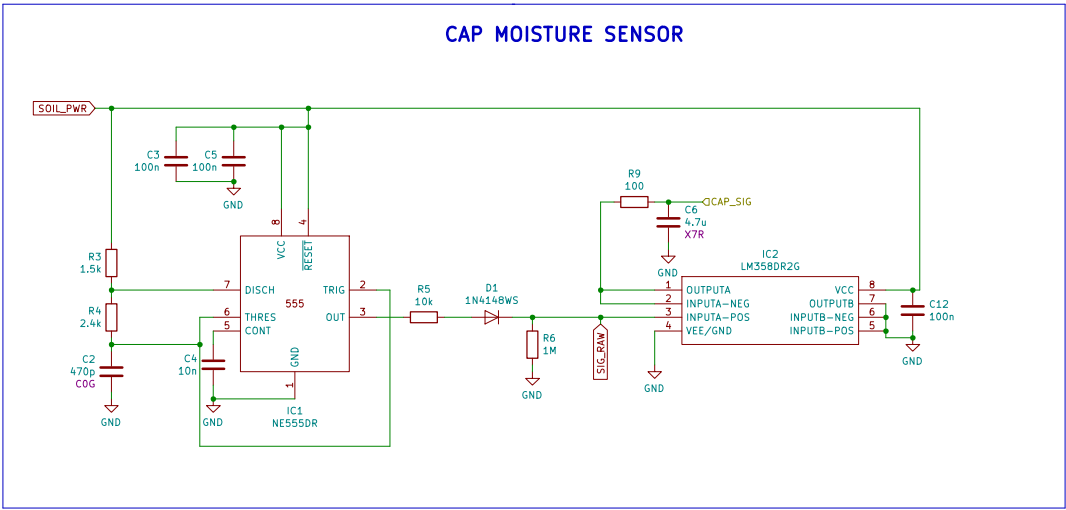
The components are labeled as follows:

- IC4: AHT20
- C19: 100nF capacitor
- X7R: 50V surge protection diode
- NC1: No connection
- NC2: No connection
- VDD: Power supply pin
- GND: Ground pin
- SDA: I2C data bus pin
- SCL: I2C clock bus pin



CAP MOISTURE SENSOR

The diagram illustrates a CAP Moisture Sensor circuit. It features a 555 timer (IC1, NE555DR) configured as a monostable multivibrator. The timer's TRIG pin (pin 2) is connected to a 1N4148WS diode (D1) through a 1MΩ resistor (R6). The diode's other terminal is connected to a 10kΩ resistor (R5) and the output of the op-amp (IC2, LM358DR2G). The 555 timer's VCC (pin 8) and RESET (pin 4) are connected to a 5V supply (SOIL_PWR). The timer's DISCH (pin 7) is connected to a 1.5kΩ resistor (R3) and the 5V supply. The timer's THRES (pin 6) and CONT (pin 5) are connected to a 2.4kΩ resistor (R4) and the 5V supply. The timer's OUT (pin 3) is connected to the input of the op-amp (IC2). The op-amp is configured as a voltage follower, with its output (OUTPUTA) connected to its non-inverting input (INPUTA-POS). The op-amp's output is also connected to a 100nF capacitor (C12) to ground. The circuit is powered by a 5V supply (SOIL_PWR) and includes various resistors (R3, R4, R5, R6, R9) and capacitors (C2, C3, C4, C5, C6) for timing and signal conditioning.



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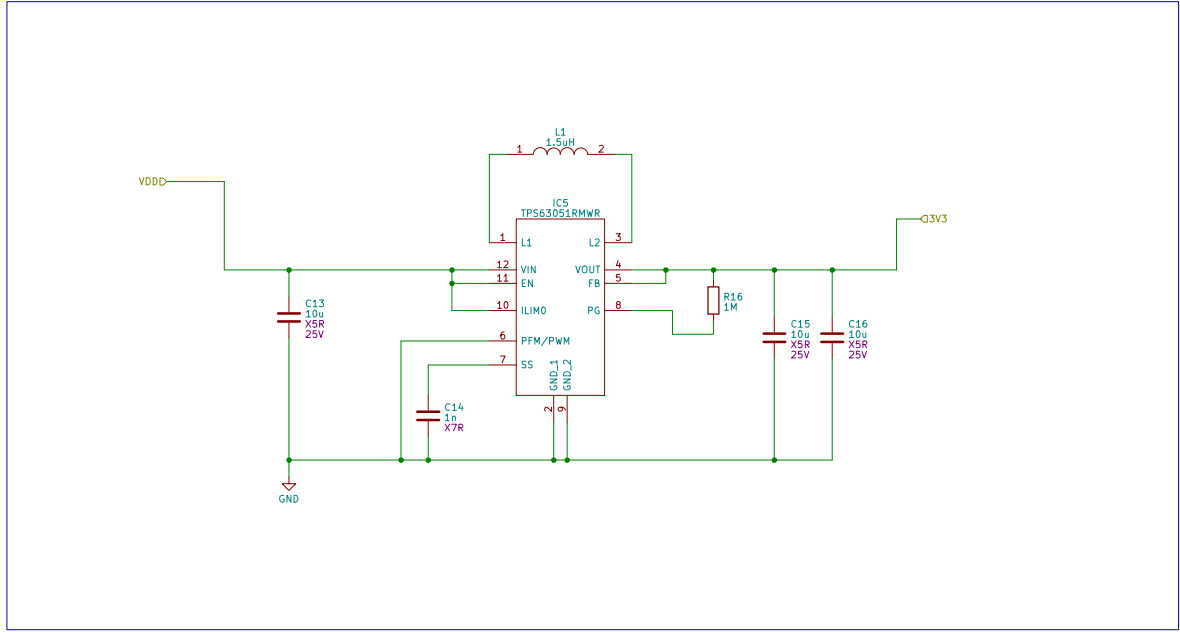
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