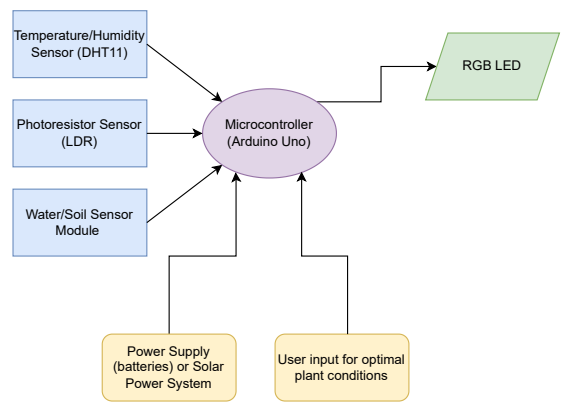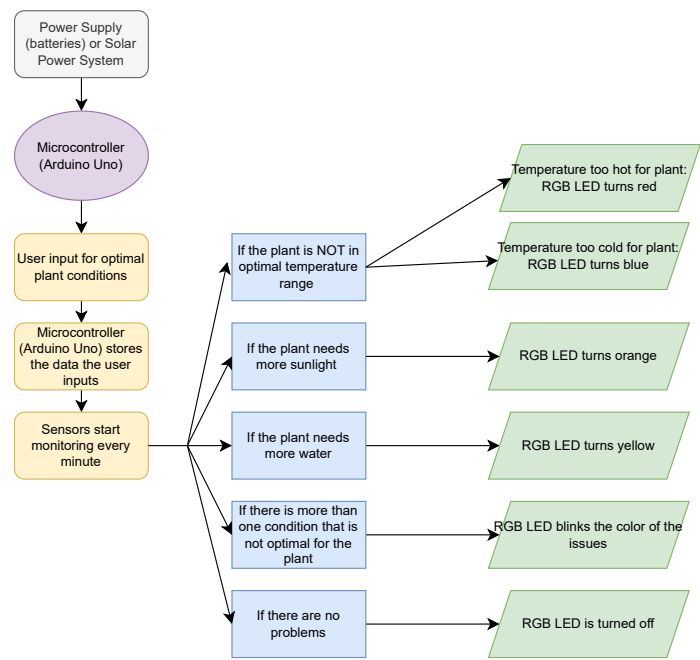## Block Diagram for the Smart Plant Monitor

Above is the block diagram for the smart plant monitor. Blue blocks represent the input sensors, green are the output, purple is the microcontroller, and the yellow is external components such as the battery and user input.

Block Diagram for the Smart Plant Monitor

The diagram above shows the advanced block diagram of the Smart Plant Monitor, highlighting the function of each sensor and the system's response under different conditions. The monitor is powered by a battery. Once powered, the user can input the optimal temperature range for the specific plant being monitored. The microcontroller stores this data, and the sensors begin monitoring.

Each sensor measures temperature, soil moisture, or sunlight at one-minute intervals. This helps conserve battery life, as continuous monitoring would drain the battery more quickly. After collecting the data, the microcontroller evaluates whether the current conditions fall within the user-defined optimal range.

If the temperature is too high, the RGB LED turns red; if it is too low, the LED turns blue. If sunlight is insufficient, the LED turns orange, and if soil moisture is too low, the LED turns yellow. When multiple conditions are outside the optimal range, the RGB LED flashes the corresponding colors in sequence, for example, if the temperature is too low and the soil moisture is too low, the LED alternates between blue and yellow. When all conditions are within the optimal range, the RGB LED remains off.