Mission 1

#define LED\_BUILTIN 2

void setup() {

  pinMode(LED\_BUILTIN, OUTPUT);

}

void loop() {

  digitalWrite(LED\_BUILTIN, HIGH);

  delay(5000);

  digitalWrite(LED\_BUILTIN, LOW);

  delay(5000);

}

Mission 2  
#include <Wire.h>

#include <Adafruit\_BME280.h>

#include <Adafruit\_SSD1306.h>

#define SCREEN\_WIDTH 128

#define SCREEN\_HEIGHT 64

Adafruit\_BME280 bme;

Adafruit\_SSD1306 display(SCREEN\_WIDTH, SCREEN\_HEIGHT, &Wire, -1);

void setup() {

  Serial.begin(9600);

  if (!bme.begin(0x3C)) {

    Serial.println("Could not find BME280 sensor!");

    while (1);

  }

  display.clearDisplay();

}

void loop() {

  float temperature = bme.readTemperature();

  float humidity = bme.readHumidity();

  float pressure = bme.readPressure() / 100.0F;

  display.clearDisplay();

  display.setTextSize(1);

  display.setTextColor(SSD1306\_WHITE);

  display.setCursor(0, 0);

  display.print("Temp: ");

  display.print(temperature);

  display.println(" C");

  display.print("Humidity: ");

  display.print(humidity);

  display.println(" %");

  display.print("Pressure: ");

  display.print(pressure);

  display.println(" hPa");

  delay(2000);

}

Mission 3  
  
#include <Servo.h>

Servo gateServo

buttonPin = 2

ledPin = 13

servoPin = 9

void setup() {

  Serial.begin(9600);

  gateServo.attach(servoPin);

  pinMode(buttonPin, INPUT\_PULLUP);

  pinMode(ledPin, OUTPUT);

  gateServo.write(0);

  digitalWrite(ledPin, LOW);

  Serial.println("Gate Control System Ready!");

}

void loop() {

  if (digitalRead(buttonPin) == LOW) {

    Serial.println("Opening gate...");

    digitalWrite(ledPin, HIGH);

    gateServo.write(90);

    delay(1000);

    Serial.println("Closing gate...");

    gateServo.write(0);

    digitalWrite(led, LOW);

    delay(1000);

  }

}

Mission 4 tolerance  
TopCasing.stl: 60 KB – 120 KB

BottomCasing.stl: 1.00 MB – 1.80 MB   
  
Mission 5

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Time of Day** | **Temperature (°C)** | **Humidity (%)** | **Demand (kWh)** |  |  |  |  |
| Morning | 24 | 60 | 140 |  |  |  |  |
| Morning | 25 | 55 | 180 |  |  |  |  |
| Morning | 25 | 60 | 260 |  |  |  |  |
| Afternoon | 28 | 50 | 240 |  |  |  |  |
| Afternoon | 30 | 60 | 200 |  |  |  |  |
| Afternoon | 29 | 65 | 160 |  |  |  |  |
| Evening | 27 | 70 | 210 |  |  |  |  |
| Evening | 26 | 60 | 190 |  |  |  |  |
| Evening | 29 | 55 | 230 |  |  |  |  |
| Night | 23 | 75 | 110 |  |  |  |  |
| Night | 22 | 65 | 200 |  |  |  |  |
| Night | 22 | 80 | 180 |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

Mission 6

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Temperature | Humidity | Air Pressure | Wind Speed | Rain |
| 22 | 90 | 1008 | 20 | 1 |
| 18 | 85 | 1005 | 16 | 1 |
| 20 | 92 | 1003 | 18 | 1 |
| 25 | 60 | 1022 | 6 | 0 |
| 30 | 40 | 1025 | 8 | 0 |
| 28 | 50 | 1020 | 9 | 0 |
| 24 | 88 | 1007 | 22 | 1 |