Control Panel Simulation Activity

The system layout:

* Red LED that is on and stays on when the system is not being used.
* Green LED that turns on and stays on when the system is being used.
* Yellow LED that simulates a function (like a crane moving large parts across the plant floor) moving) happening in the plant. The yellow LED should turn on only when a button at switch board is being pressed.
* On the control panel monitor (aka serial monitor) print:
  + A circuit board

    Description automatically generatedwhen the system turns on
  + when the function is happening
  + when the system turns off

|  |  |
| --- | --- |
| **int switch1;** |  |
| **int switch2;** |
| **void setup() {** |  |
| **Serial.begin(9600);** |  |
| **pinMode(2,INPUT);** |  |
| **pinMode(5,INPUT);** |
| **pinMode(12,OUTPUT);** |
| **pinMode(11,OUTPUT);** |
| **pinMode(10,OUTPUT);** |
| **}** |  |
| **void loop() {** |  |
| **switch1 = digitalRead(2);** |  |
| **switch2 = digitalRead(5);** |
| **Serial.print("switch1 = "); Serial.print(switch1);** |  |
| **Serial.print(" switch2 = "); Serial.print(switch2);** |
| **if (switch1==0){** |  |
| **Serial.println("The system is OFF");** |
| **digitalWrite(12, HIGH);** |
| **digitalWrite(11, LOW);** |
| **}** |  |
| **if (switch1==1){** |  |
| **Serial.println("The system is ON");** |
| **digitalWrite(12, LOW);** |
| **digitalWrite(11, HIGH);** |
| **}** |  |
| **if (switch2==1){** |  |
| **Serial.println("The function is in progress");** |
| **digitalWrite(10, HIGH);** |
| **}** |  |
| **if (switch2==0){** |  |
| **Serial.println("The function is NOT in progress");** |
| **digitalWrite(10, LOW);** |
| **}** |  |
| **}** |  |
| **int switch1;** | **Name 2 switches used in this program and set their values as integers** |
| **int switch2;** |
| **void setup() {** |  |
| **Serial.begin(9600);** |  |
| **pinMode(2,INPUT);** | **Set digital pins as INPUTs (to read switches) or OUTPUTs to read switches and light LEDs.** |
| **pinMode(5,INPUT);** |
| **pinMode(12,OUTPUT);** |
| **pinMode(11,OUTPUT);** |
| **pinMode(10,OUTPUT);** |
| **}** |  |
| **void loop() {** |  |
| **switch1 = digitalRead(2);** | **Read switches to determine their states (0 or 1).** |
| **switch2 = digitalRead(5);** |
| **Serial.print("switch1 = "); Serial.print(switch1);** | **Print states of switches to the Serial Monitor** |
| **Serial.print(" switch2 = "); Serial.print(switch2);** |
| **if (switch1==0){** | **If switch1 is low (0), print system state (OFF) and turn on PIN 12 LED and turn off PIN 11 LED.** |
| **Serial.println("The system is OFF");** |
| **digitalWrite(12, HIGH);** |
| **digitalWrite(11, LOW);** |
| **}** |  |
| **if (switch1==1){** | **If switch1 is high (1), print system state (ON) and turn off PIN 12 (Red) LED and turn on PIN 11 (Green) LED.** |
| **Serial.println("The system is ON");** |
| **digitalWrite(12, LOW);** |
| **digitalWrite(11, HIGH);** |
| **}** |  |
| **if (switch2==1){** | **If switch2 is high (1), print system state (in progress) and turn on (Yellow) PIN 10 LED.** |
| **Serial.println("The function is in progress");** |
| **digitalWrite(10, HIGH);** |
| **}** |  |
| **if (switch2==0){** | **If switch2 is low (0), print system state (in progress) and turn off (Yellow) PIN 10 LED.** |
| **Serial.println("The function is NOT in progress");** |
| **digitalWrite(10, LOW);** |
| **}** |  |
| **}** |  |