Experiment No. : 06

Statement : Design a 4-bit counter.

Date of Exp. : xx/xx/xxxx

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const int ledPins[] = {2, 3, 4, 5}; // Pins connected to the LEDs

const int switchPin = 6; // Pin connected to the switch

const int numBits = 4; // Number of bits in the counter

int counter = 0; // Initial counter value

void setup() {

// Set the LED pins as outputs

for (int i = 0; i < numBits; i++) {

pinMode(ledPins[i], OUTPUT);

}

// Set the switch pin as input

pinMode(switchPin, INPUT\_PULLUP);

}

void loop() {

// Check if the switch is pressed

if (digitalRead(switchPin) == LOW) {

// Increment the counter

counter++;

// Reset the counter if it reaches 16 (overflows)

if (counter == (1 << numBits)) {

counter = 0;

}

// Display the current counter value on LEDs

displayCounter();

// Delay to debounce the switch

delay(200);

}

}

// Function to display the current counter value on LEDs

void displayCounter() {

for (int i = 0; i < numBits; i++) {

digitalWrite(ledPins[i], (counter >> i) & 1);

}

}

