

```
// Intelligent Parking System (Simplified for Wokwi)
// Language: Arduino C++
// Board: Arduino UNO
```

```
#define TRIG1 2
#define ECHO1 3
#define TRIG2 4
#define ECHO2 5
#define TRIG3 6
#define ECHO3 7
```

```
#define LED1 8
#define LED2 9
#define LED3 10
```

```
int totalSlots = 3;
int occupiedSlots = 0;
long duration;
int distance;
```

```
int readDistance(int trigPin, int echoPin) {
    digitalWrite(trigPin, LOW);
    delayMicroseconds(2);
    digitalWrite(trigPin, HIGH);
    delayMicroseconds(10);
    digitalWrite(trigPin, LOW);
    duration = pulseIn(echoPin, HIGH);
    distance = duration * 0.034 / 2; // cm
    return distance;
}
```

```
void setup() {
    Serial.begin(9600);

    pinMode(TRIG1, OUTPUT); pinMode(ECHO1, INPUT);
    pinMode(TRIG2, OUTPUT); pinMode(ECHO2, INPUT);
    pinMode(TRIG3, OUTPUT); pinMode(ECHO3, INPUT);

    pinMode(LED1, OUTPUT);
    pinMode(LED2, OUTPUT);
    pinMode(LED3, OUTPUT);

    Serial.println("Smart Parking System Started...");
}
```

```

void loop() {
  occupiedSlots = 0;

  int d1 = readDistance(TRIG1, ECHO1);
  int d2 = readDistance(TRIG2, ECHO2);
  int d3 = readDistance(TRIG3, ECHO3);

  // Slot 1
  if (d1 < 10) { digitalWrite(LED1, HIGH); occupiedSlots++; }
  else { digitalWrite(LED1, LOW); }

  // Slot 2
  if (d2 < 10) { digitalWrite(LED2, HIGH); occupiedSlots++; }
  else { digitalWrite(LED2, LOW); }

  // Slot 3
  if (d3 < 10) { digitalWrite(LED3, HIGH); occupiedSlots++; }
  else { digitalWrite(LED3, LOW); }

  int available = totalSlots - occupiedSlots;

  Serial.print("Occupied Slots: ");
  Serial.print(occupiedSlots);
  Serial.print(" | Free Slots: ");
  Serial.println(available);

  delay(1000);
}

```