1. LED Blinking

```
int led = 13;
void setup() {
pinMode(led, OUTPUT);
}
void loop() {
digitalWrite(led, HIGH);
 delay(1000);
digitalWrite(led, LOW);
delay(1000);
}
```

2. Gas Sensor

```
int ledPin_1 = 2;
int ledPin_2 = 3;
int ledPin_3 = 13;
int ledPin_4 = 12;
int ledPin_5 = 6;
int ledPin_6 = 7;
int mq8Pin = A0;
int sensorValue = 0;
int threshold = 350;
void setup() {
pinMode(ledPin_1, OUTPUT);
pinMode(ledPin_2, OUTPUT);
pinMode(ledPin_3, OUTPUT);
pinMode(ledPin_4, OUTPUT);
pinMode(ledPin_5, OUTPUT);
pinMode(ledPin_6, OUTPUT);
Serial.begin(9600);
}
void loop() {
sensorValue = analogRead(mq8Pin);
Serial.print("Gas Sensor Value: ");
Serial.println(sensorValue);
if (sensorValue > threshold) {
digitalWrite(ledPin_2, LOW);
digitalWrite(ledPin_1, HIGH);
digitalWrite(ledPin_5, LOW);
digitalWrite(ledPin_6, HIGH);
digitalWrite(ledPin_4, LOW);
} else {
delay(1000);
digitalWrite(ledPin_1, LOW);
digitalWrite(ledPin_4, LOW);
digitalWrite(ledPin_6, LOW);
digitalWrite(ledPin_4, HIGH);
}}
```

3. Ultrasonic

```
const int trigPin = 2;
const int echoPin = 3;
const int buzzerPin = 8;
float length = 0;
const float thresholdDistance = 30.0;
void setup() {
Serial.begin(9600);
pinMode(trigPin, OUTPUT);
pinMode(echoPin, INPUT);
pinMode(buzzerPin, OUTPUT);
}
void loop() {
digitalWrite(trigPin, LOW);
delayMicroseconds(2);
digitalWrite(trigPin, HIGH);
delayMicroseconds(10);
digitalWrite(trigPin, LOW);
long duration = pulseIn(echoPin, HIGH);
length = duration * 0.0343 / 2;
Serial.print("Distance: ");
Serial.print(length);
Serial.println(" cm");
if (length < thresholdDistance) {
tone(buzzerPin, 1000); // Play a tone at 1000 Hz
delay(200); // Sound duration
noTone(buzzerPin); // Stop the tone
}
delay(500); // Delay between measurements
}
```

4. Water Sensor

```
int sensorPin = A3;
int sensorValue = 0;
int value;
void setup() {
Serial.begin(9600);
pinMode(sensorPin, INPUT);
}
void loop() {
value = analogRead(sensorPin);
if (value<=480){
Serial.println("Water level: 0mm - Empty!");
}
else if (value>480 && value<=530){
Serial.println("Water level: 0mm to 5mm");
}
else if (value>530 && value<=615){
Serial.println("Water level: 5mm to 10mm");
}
else if (value>615 && value<=660){
Serial.println("Water level: 10mm to 15mm");
}
else if (value>660 && value<=680){
Serial.println("Water level: 15mm to 20mm");
}
else if (value>680 && value<=690){
Serial.println("Water level: 20mm to 25mm");
}
else if (value>690 && value<=700){
Serial.println("Water level: 25mm to 30mm");
}
else if (value>700 && value<=705){
Serial.println("Water level: 30mm to 35mm");
}
else if (value>705){
Serial.println("Water level: 35mm to 40mm");
}
delay(2000);
}
```

5. LED Fad in Fade Out

```
int led = 9;
int brightness = 0;
int fadeAmount = 5;
void setup() {
pinMode(led, OUTPUT);
}
void loop() {
analogWrite(led, brightness);
brightness = brightness + fadeAmount;
if (brightness <= 0 || brightness >= 255) {
fadeAmount = -fadeAmount;
}
delay(30);
}
```