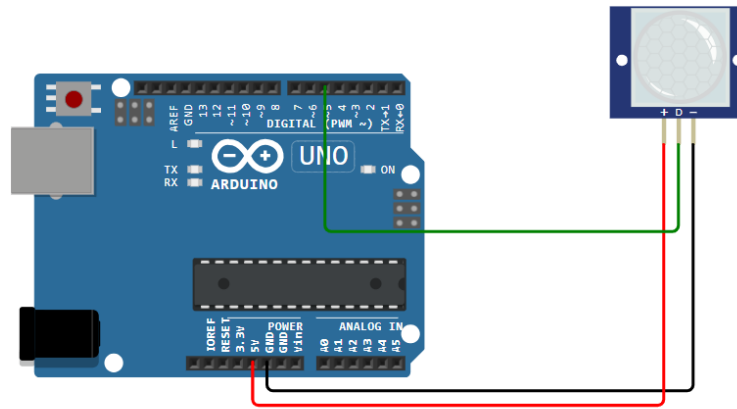**write and implement Arduino code for PIR SENSOR interfacing for motion detection .**

Arduino Code

```
const int pirPin=5;              // Digital pin connected to the PIR sensor


void setup() {
  pinMode(pirPin,INPUT);         // Set PIR sensor pin as input
  Serial.begin(9600);            // Initialize serial communication for debugging (optional)
  Serial.println("Initializing");
  delay(20000);
}


void loop() {
  int pirState=digitalRead(pirPin);   // Read PIR sensor state (HIGH or LOW)
  if(pirState==HIGH) {
          // Motion detected
    Serial.println("Motion detected!");
    delay(1000);                 // Delay for 1 second (adjust as needed)
  } else {
          // No motion
    Serial.println("No motion detected.");
  }
}
```