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Introduction To Sensors – Lesson 9: Motion Sensor

FORMULAS

The following formulas and information are meant to go with the online lesson found here:
http://www.pyroelectro.com/edu/sensors/motion/

LESSON 9 ARDUINO PROGRAM

In this lessons program we set it up for one input and two outputs. The sensor gives input to a digital pin and forces an output from two digital pin, one which toggles an LED and the other which toggles the buzzer board alarm.

It's a simple program, but make sure you understand each line before you continue to build the experiment.


```
lesson9_pir | Arduino 1.6.3
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lesson9_pir

int ledPin = 2;                // choose the pin for the LED
int inputPin = 3;              // choose the input pin (for PIR s
int pirState = LOW;            // we start, assuming no motion de
int val = 0;                   // variable for reading the pin st
int pinSpeaker = 10;           //Set up a speaker on a PWM pin (di

void setup() {
  pinMode(ledPin, OUTPUT);      // declare LED as output
  pinMode(inputPin, INPUT);     // declare sensor as input
  pinMode(pinSpeaker, OUTPUT);
  digitalWrite(pinSpeaker, HIGH);
  Serial.begin(9600);
}

void loop(){
  val = digitalRead(inputPin);  // read input value
  if (val == HIGH) {            // check if the input is HIGH
    digitalWrite(ledPin, HIGH);  // turn LED ON


    if (pirState == LOW) {
      // we have just turned on
      Serial.println("Motion detected!");
      // We only want to print on the output change, not state
      pirState = HIGH;
      digitalWrite(pinSpeaker,LOW);
    }
  } else {
      digitalWrite(ledPin, LOW); // turn LED OFF
      if (pirState == HIGH){
      // we have just turned off
      Serial.println("Motion ended!");
      // We only want to print on the output change, not state
      digitalWrite(pinSpeaker, HIGH);
      pirState = LOW;
    }
  }
}
```

ADDITIONAL INFORMATION

If you have any questions about the formulas or information found in this document, please feel free to head on over to the forums and ask us some questions!
http://www.pyroelectro.com/forums/viewforum.php?f=27