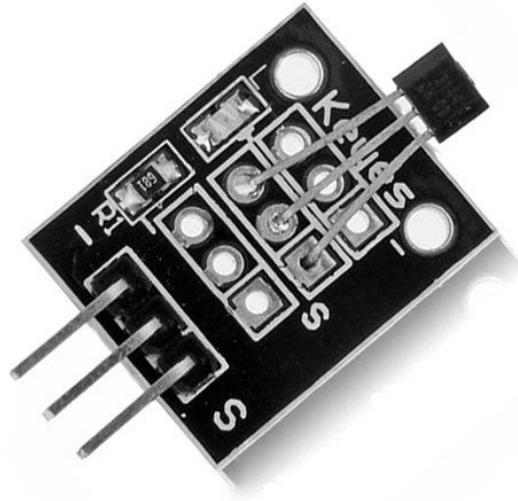# Hall Effect Sensor

Introduction

Hall effect sensors are probably the simplest sensor to interface with your Arduino next only to a push button switch.

This particular sensor detects magnetism the principle of "HALL Effect". Hall effect states that whenever a magnetic field is applied in a direction perpendicular to the flow of electric current in a conductor, a potential difference is induced. This voltage can be used to detect whether the sensor is in the proximity of a magnet or not.

Interfacing with Arduino

Wiring up the sensor is straightforward. 5V power and a ground pin are connected plus an output pin which can be connected straight to your Arduino.

Notice that whenever we put a magnet near the surface, an output HIGH is sent by the sensor as indicated by the red LED lighting up. Also note that not all sides of the sensor is sensitive to the magnet.

Let's now connect the sensor to Arduino. Do the following wiring:

(-) is connected to GND
The middle wire to 5V
And (s) is connected to digital pin 3

In this, we will use an interrupt. Polling the sensor may also be fine depending on your application.

```
#define HALL  3

void setup() {

  pinMode(HALL, INPUT);
  attachInterrupt(digitalPinToInterrupt(HALL), doHall, RISING);
  Serial.begin (9600);
  Serial.print("Begin:");
}

void loop(){

}

void doHall() {
  Serial.println("Hall Effect Sensor Triggered");
}
```

Lets fire up our serial monitor. See how Arduino sends a message whenever a trigger from the sensor is received (use a magnet to trigger the sensor).

A polling mode using digitalread() may also be used, however for "fast switching" applications, interrupt mode is preferred.