Arduino - Inputs

1 You must define which pins are being used as INPUTS in the Arduino **setup()** function as shown below for "MY_INPUT_PIN":

```
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ExampleSketch_Inputs

#define MY_INPUT_PIN  (2)    // My input is on Arduino pin 2
#define LED_PIN        (13)  // The LED is on Arduino pin13

void setup()
{
  // put your setup code here, to run once:

  // Define the hardware pins that we are using
  // INPUTS
  pinMode(MY_INPUT_PIN, INPUT);

  // OUTPUTS
  pinMode(LED_PIN, OUTPUT);
}
```

2 In the Arduino main **loop()** function, read the input when you want do something which depends on whether it is HIGH or LOW – in this case turning the LED on/off:

```
void loop()
{
  // put your main code here, to run repeatedly:

  // Read my input pin and control the LED output
  if (digitalRead(MY_INPUT_PIN))
  {
    // If my input pin has a high voltage (e.g. > 3V) on it
    // then the digitalRead will return TRUE
    // so we turn on the LED
    digitalWrite(LED_PIN, HIGH);
  }
  else
  {
    // If my input pin has a low voltage (e.g. 0V) on it
    // then the digitalRead will return FALSE
    // so we turn the LED off
    digitalWrite(LED_PIN, LOW);
  }
}
```

3 The Robot Car Kit has had 4 proximity Sensors[1] added around it which normally give a **HIGH** signal to the Arduino, but give a **LOW** signal to the Arduino when they detect an object is close.

The sensors are connected to four inputs as follows:

Position	Wire Colour	Input pin
Front Right	Blue	2
Front Left	Green	3
Rear Left	Yellow	4
Rear Right	Black	5

4 Try to define input pins for these sensors and use them to control the motion of the robot:

Can you use them to stop the robot moving before it hits whatever the sensor has detected?

How fast can the robot move so that you can still stop in time?

Can you make the robot 'bounce' off anything it encounters?

Try making it continue in the new direction to make it like a no-contact football:

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[1] **A suitable Sharp GP2Y0810Z0F Digital Distance Sensor with 10cm range is available already mounted on a carrier for easy use as product #1134 from www.pololu.com**