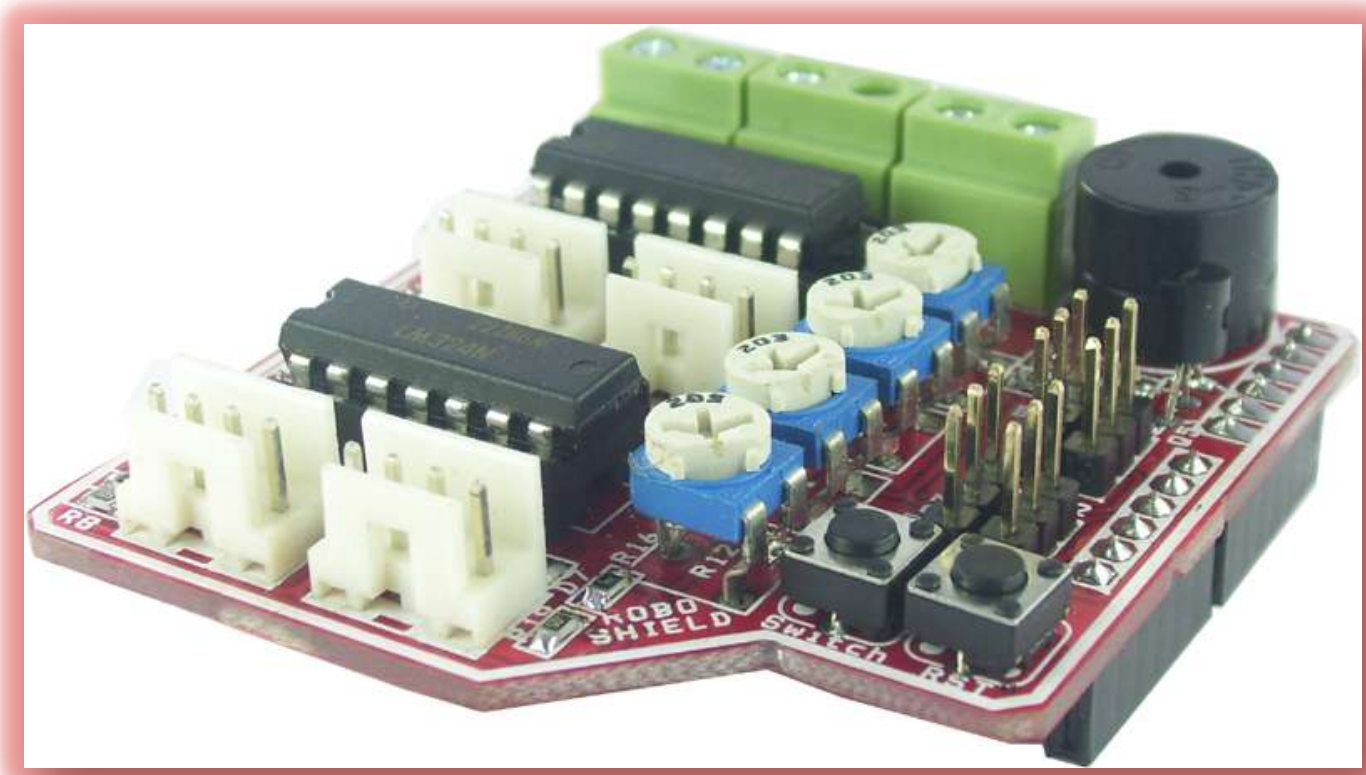
# Sensor and Motor Shield for Arduino




Shield for Arduino

Drives Two DC Motors

+

Attach 4 Sensors for Line or Obstacle

+

Use Buzzer or Control one Servo Motor

+

Use Switch or Control one Servo Motor

+

2 LEDs

# Sensor and Motor Shield for Arduino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# 1. About Shields for Arduino

The Arduino is Open Source Computing platform based on the AVR Microcontrollers.

The Arduino basic board has one AVR microcontroller and one USB interface available on it.

All Digital and Analog pins are brought out for connections.

Thus to use the Arduino basic board, there should be some interface circuit connected to it.

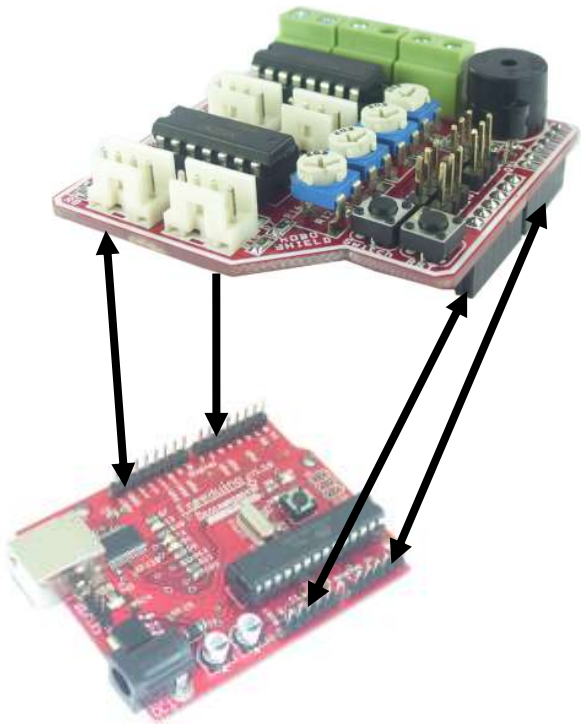
The Interface circuit can be connected externally using single pin wires.

But there is a simple way to connect interface circuit to the Arduino basic Board, **the Shields.**

The Arduino shields are mechanically compatible to the Arduino Base Board so that the Shields can be **pushed to the** Arduino Base Board **from Top**.

Thus there is no need to make connections from Digital and Analog I/O Pins to the interface pins.

Below pictures explains the way of inserting the Shield to the Arduino Base. (**Note: The Arduino Base is not included in this product cost.)**



# 2. Connection and Usage Details of the Shield

The Shield for Arduino has following interfaces:

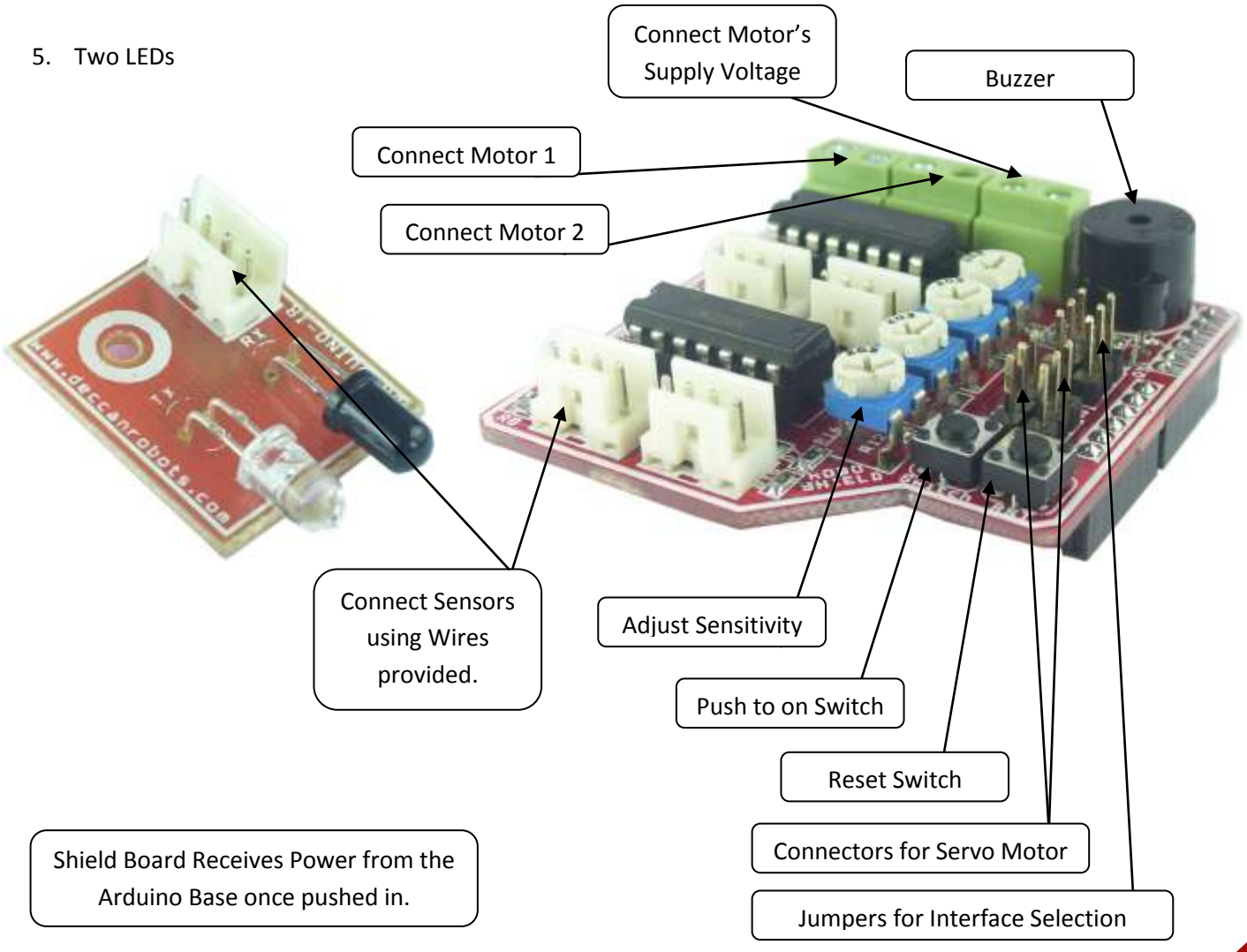
1. DC Motor Interface (Drives 2 DC Motors for Hobby Robots.
   The interface is built around the L293D DC Motor Driver IC.

2. Line Sensor / Obstacle Sensors (Attach 4 such Sensors)
   Use these sensors to detect Line (Black on White) or any obstacle within 6cm range. This is based on IR Trans-receiver and a Comparator IC LM324

3. The Buzzer or Servo Motor
   Select the interface with the help of a Jumper. Buzzer can be used to generate Bips or simple tunes.

4. The Switch or Servo Motor
   Select the interface with the help of a Jumper. Use switch to start the robot or do some other action. You will have to write the code to read the switch.

5. Two LEDs



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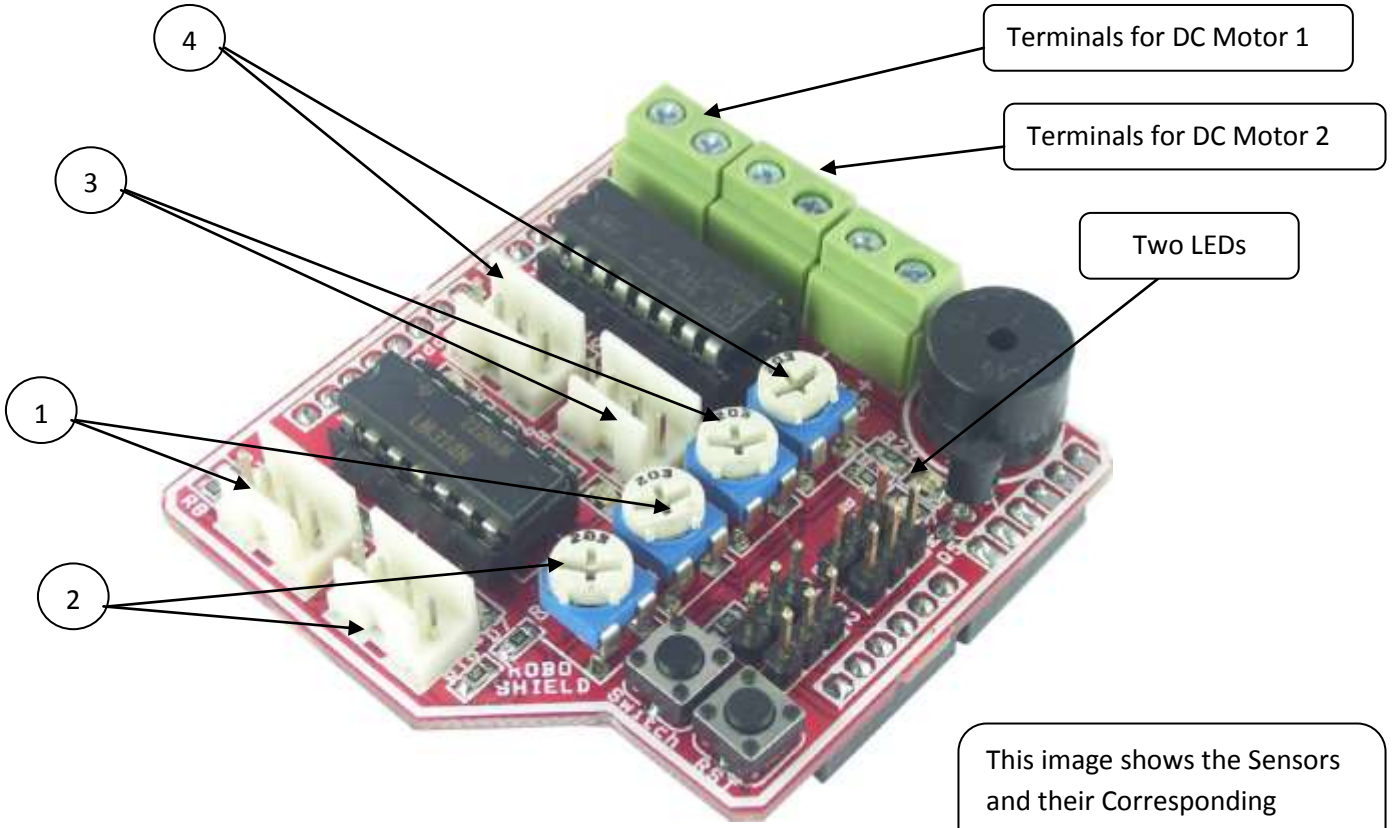



This image shows the Sensors and their Corresponding Sensitivity Controlling Presets.

**Mapping of Interfaces with Arduino Digital Lines:**

| Interface Description | Digital Line of Arduino used |
|---|---|
| Output of IR Sensor 1 | 10 |
| Output of IR Sensor 2 | 13 |
| Output of IR Sensor 3 | 12 |
| Output of IR Sensor 4 | 11 |
| Buzzer / Servo Motor (Depends on what you select) | 6 |
| Switch / Servo Motor (Depends on what you select) | 9 |
| DC Motor 1- Enable Line | 3 |
| DC Motor 1- I1 Line | 2 |
| DC Motor 1- I2 Line | 4 |
| DC Motor 2- Enable Line | 5 |
| DC Motor 2- I1 Line | 7 |
| DC Motor 2- I2 Line | 8 |
| LED 1 | 0 |
| LED 2 | 1 |

**To run the DC Motor,**

1. Enable Line must be set to HIGH
2. Set I1 line to HIGH and I2 line to LOW (Rotates in one direction)
3. Set I1 line to LOW and I2 line to HIGH (Rotates in another direction)

# 3. Contents of the Product

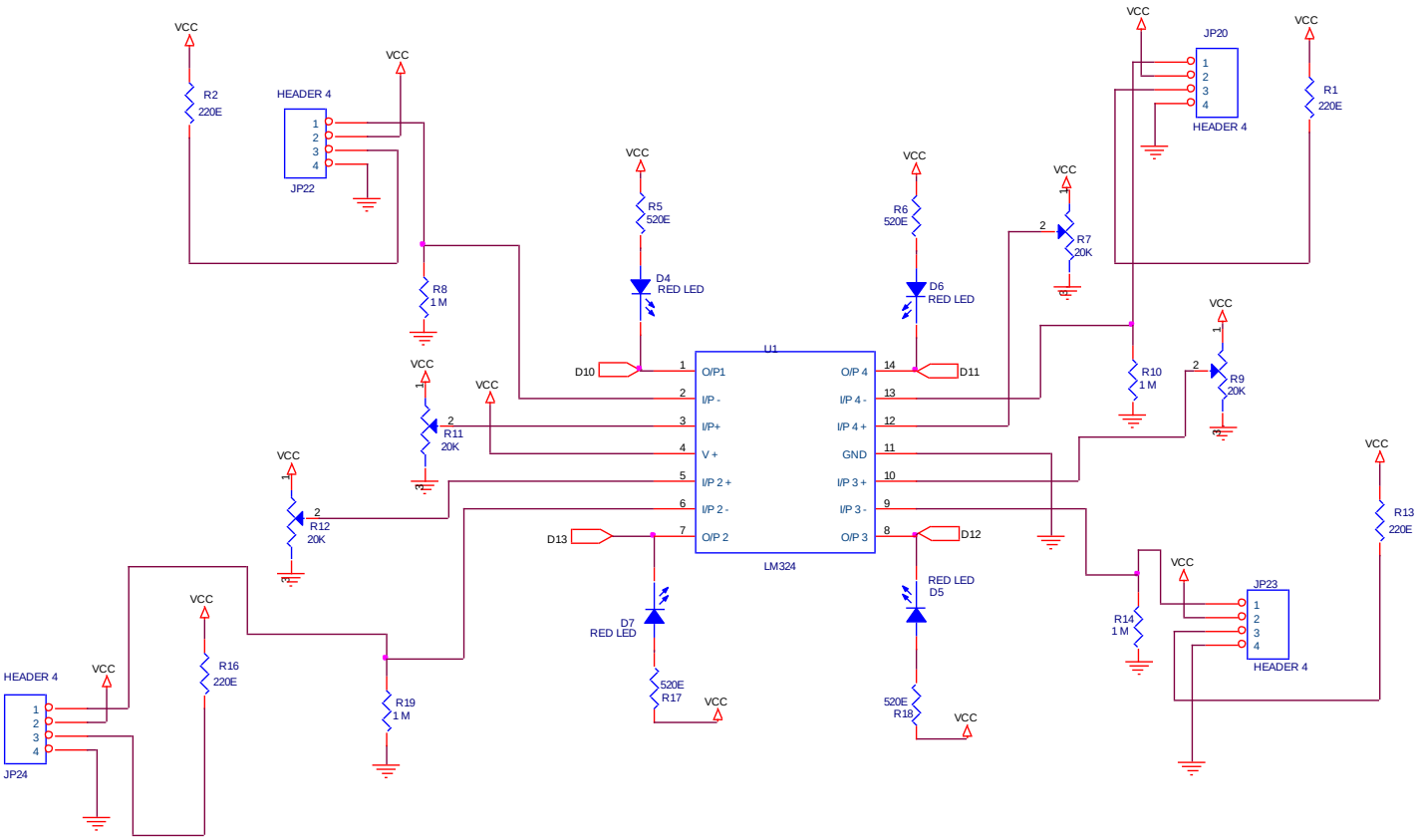
The product contents following items:

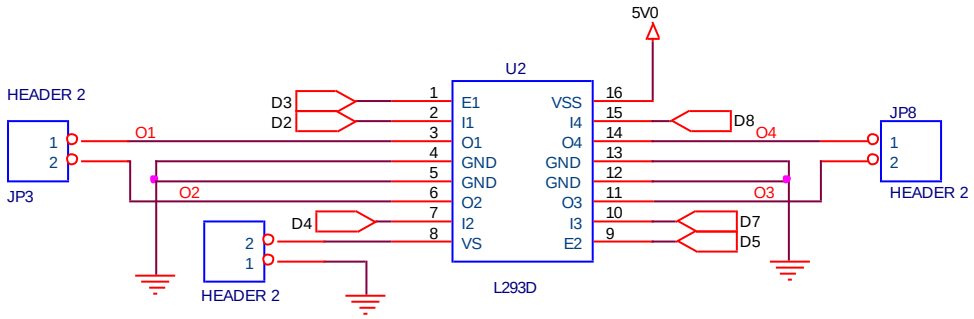
One Shield board

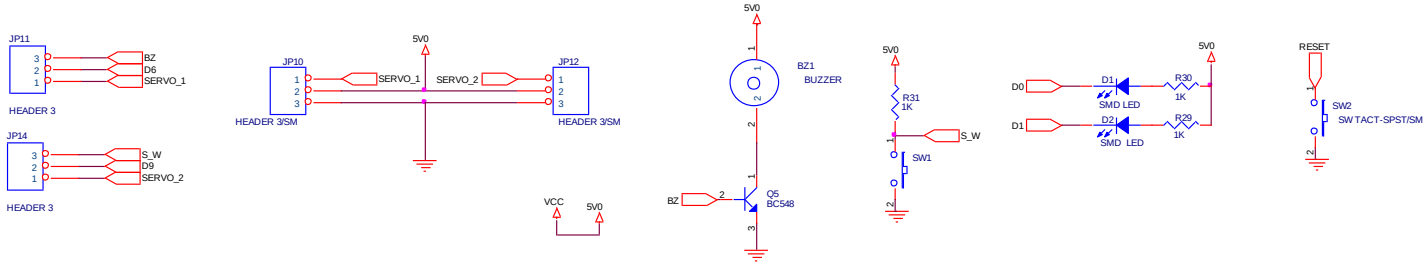
Four Sensor Boards

Four Cables for connecting Sensors to the Shield

# 4. Schematics



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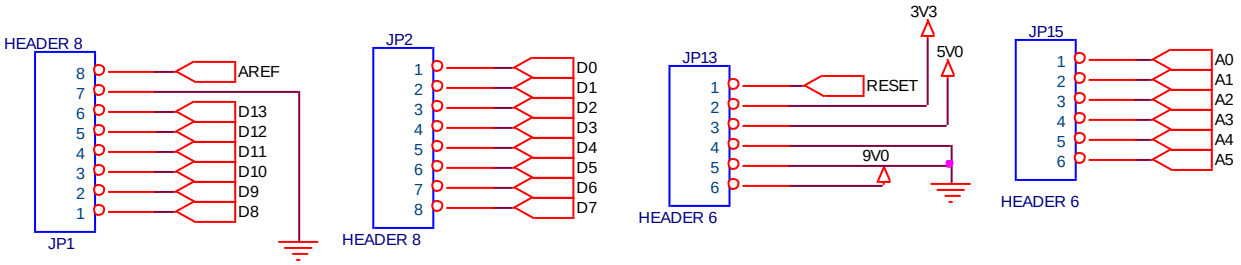

# 5. Important Information

1. Sensor and Motor Shield is designed for experiments and is not suitable to be used in life support and mission critical products.

2. Always request support over email as it allows the technical team to answer it in more detail which is not possible over phone.

3. Manufactured by:

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