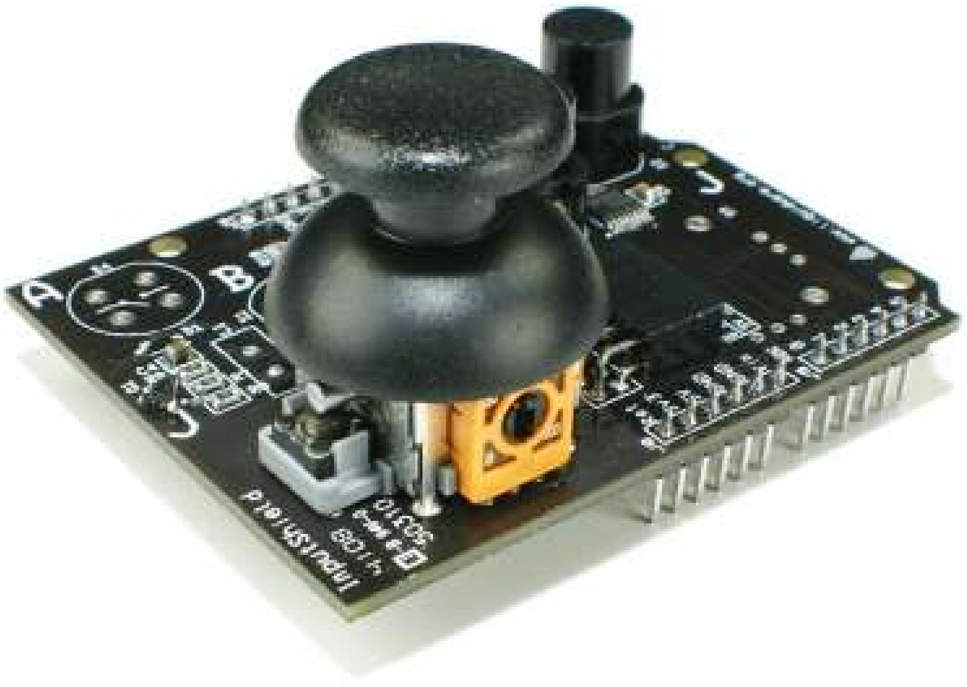
InputShield



Typical Applications:

- Gaming
- Physical Computing
- Robotic Control

Product Features:

- 1 Joy Stick
- 2 Buttons
- 1 Vibration Motor
- 2 Operating Modes
- Pass-through signal header

Contents

1. Functional Description

The InputShield provides the Arduino access to a dual axis joystick, 3 buttons, and vibration motor for force feedback.

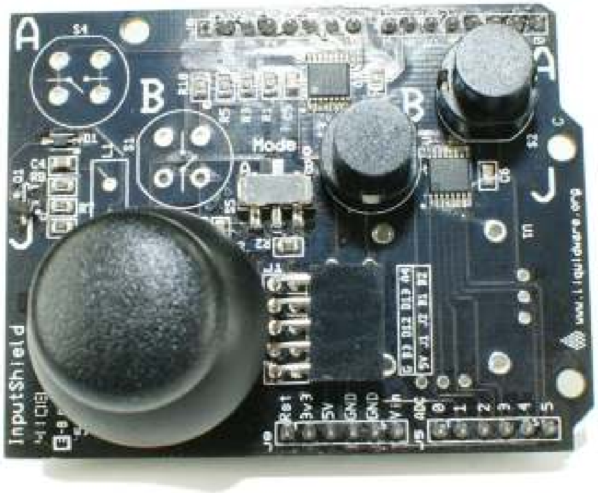
An AB Mode selection switch changes the Arduino occupied pins. This mode selection allows two InputShields to be mounted on a single Arduino via an ExtenderShield, preventing the clobbering of the signals.

2. Pin Description

	Mode	
Arduino Pin	**A**	**B**
4	Button B	x
5	Button A	x
6	Joy Button	x
7	Vibration Enable	x
8	x	Button B
9	x	Button A
10	x	Joy Button
11	x	Vibration Enable
Analog 5	Joy Lateral	x
Analog 4	Joy Vertical	x
Analog 2	x	Joy Lateral
Analog 3	x	Joy Vertical

InputShield Pin Description

3. Joystick & Buttons A, B, & 3



The InputShield has two primary buttons: "A" and "B" Button 3 is the Joystick when it is pushed down.

The buttons typically output +5V to the respective output. When the button is pushed, it outputs a low (0V) signal to the respective output pins.

The Joystick output will provide varying analog voltage between 0-5 VDC depending on the rotation angle (lateral or vertical). Read these values on your Arduino by executing the following code,

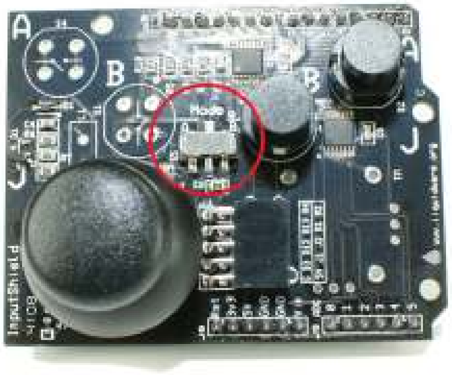
```
unsigned int joyLatValue;
unsigned int joyVertValue;

joyLatValue  = analogRead(5);
joyVertValue  = analogRead(4);
```

Pretty easy so far, right?

4. AB Mode Control

The InputShield has two operating modes: "Mode A" and "Mode B" (see table in Section 2, "Pin Description"). These Modes are controlled by a switch located in the middle of the shield, identified by the red circle in the figure to the right.

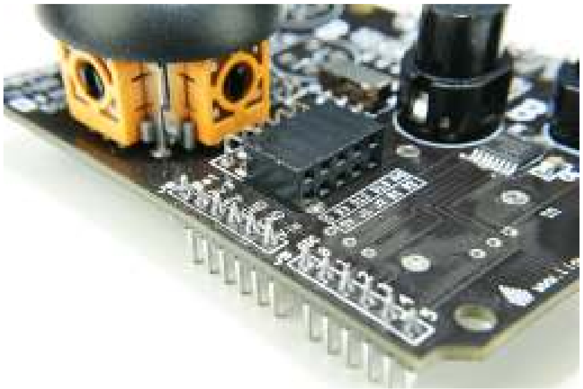


5. Vibration Motor

A small vibration motor is attached to the bottom of the Shield. The vibration motor will vibrate when Pin 7 (Mode A) or Pin 11 (Mode B) is grounded.

6. Pin Pass Through

Unused Arduino pins can be accessed through the right angle connector (J1). Shown in the figure on the right, J1 also provides access to all the button and Joystick outputs of the InputShield. The signal list is provided in the table below.



GND	Button 3	D12	D13	Analog 1
5VDC	Joy Lateral	Joy Vertical	Button A	Button B

J1 Pin Description

7. Arduino Test Code

```
//Uploaded this to an Arduino and run the serial monitor.

void setup()
{
Serial.begin(9600);
pinMode(7,OUTPUT);
digitalWrite(7,LOW);

pinMode(11,OUTPUT);
digitalWrite(11,OUTPUT);

digitalWrite(4, HIGH); pinMode(4, INPUT);
digitalWrite(5, HIGH); pinMode(5, INPUT);
digitalWrite(6, HIGH); pinMode(6, INPUT);

digitalWrite(8, HIGH); pinMode(8, INPUT);
digitalWrite(9, HIGH); pinMode(9, INPUT);
digitalWrite(10, HIGH); pinMode(10, INPUT);
}
```

```
void loop()
{

 Serial.print("Mode A:  ");
 Serial.print(" AL1: ");
 Serial.print((unsigned int)analogRead(5));//mode a horizontal
 Serial.print(" AV1: ");
 Serial.print((unsigned int)analogRead(4));//mode a vertical


  Serial.print(" AA: ");
  Serial.print((unsigned int)digitalRead(5));// mode a   A button

  Serial.print(" AB: ");
  Serial.print((unsigned int)digitalRead(4)); //mode a   B button

  Serial.print(" AJoy: ");
  Serial.print((unsigned int)digitalRead(6));// mode a   Joy button

 Serial.print("\n");

  Serial.print("Mode B:  ");

 Serial.print(" BL2: ");
 Serial.print((unsigned int)analogRead(3));//mode b lateral
 Serial.print(" BV2: ");
 Serial.print((unsigned int)analogRead(2));//mode b vertical


  Serial.print(" BA: ");
  Serial.print((unsigned int)digitalRead(9));// mode b   A button
  Serial.print(" BB: ");
  Serial.print((unsigned int)digitalRead(8));//mode b   B button
  Serial.print(" BJoy: ");
  Serial.print((unsigned int)digitalRead(10));//mode b   Joy button

  Serial.print("\n");
  Serial.print("\n");
  digitalWrite(7,LOW);
  delay(100);
  digitalWrite(7,HIGH);
  delay(100);
  digitalWrite(11,LOW);
  delay(400);
  digitalWrite(11,HIGH);
  delay(400);
}
```