PINWHEEL ROBOTICS ARDUINO NANO SHIELD

# Prateek Kumar Baishkhiyar

# Krushnakumara P

| Sl. No. | Date | Comments |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

# Introduction:

Arduino Nano Based Shield is for the purpose of ease of interfacing various GPIO devices to the Arduino Nano without worrying about the jumbling of wire and wasting lots of time in just debugging the circuit for hardware connections.

The idea is to introduce a motor driver on the shield itself so there will be no requirement for extra wiring to be made for the most commonly used components while building any projects or POCs on Robotics.

The board will also have the most commonly used communication interfaces such as UART , I2C , ICSP so to connect any module that uses any of these interfaces will be a breeze.

# Requirements:

1. On-board L293D based dual DC Motor drive with PWM capability.

2. Tinker Input Ports for connecting various Digital and Analog sensors. (Vcc, GND, Sig)

3. Dual Joystick Interface using 5 Pin connectors.

4. 4 Servo Motor Interface with Power Select Jumper – 4 DOF Robotic Arm Controller.

5. On board support for DF Mini Player –Audio Output.

6. 1 On board Output LED –Can be multiplexed using DIP switch or Jumper Select

7. 1 On board Buzzer - Can be multiplexed using DIP switch or Jumper Select

8. 5 Pin Connector for RGB LED Matrix Display

9. 5 or 4 Pin connector for I2C communication

10. On board provision for interfacing HC-05/06 Module

11. On board provision for Ultrasonic HC-SR04 sensor

12. 4 Pin connector for UART communication

13. 2 Pin connector for connecting 0.5w 8Ohm speaker – Transistor based simple amplifiers can be used.

14. Dual 2 pin connector for motor interfacing

15. Supplementary pins for Vcc, GND and Vin

16. On-board Power switch / connector for switch

17. Regulated 5V DC provision if required.

Schematic

