PINWHEEL ROBOTICS SCRATCH BOT ROBOT Version 2.0

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# Introduction:

Scratch-Bot by Pinwheel Robotics is a programmable Toy Robot designed for elementary kids who would want to delve into programming things using simple scratch and block based coding.

The Robot should include integrated sensors on the board to understand the environment and respond by way of moving wheels, wagging tails, blinking eyes, changing color, producing sound. The idea is to make the robot interesting and funny for them at the same time kids learning to code!

# Requirements:

1. On board connector for Arduino Nano.

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

3. On board Servo Motor drive for wagging tail.

4. On board 2 TCRT 5000 based proximity sensors for following line.

5. On board Circuit for LDR sensor, with pinout for connecting only LDR.

6. Connector for Ultrasonic HC-SR04 sensor interfacing.

7. On board connector for 5x5 LED Matrix.

8. On board dual 1W RGB LED Drive with LED.

9. On board support for DF Mini Player –Audio Output with simple Transistor based amplifier to drive 0.5W 8Ohm Mini Speaker.2 pin connector can be used to connect speaker to board.

10. On board Buzzer- either buzzer or speaker will be active at one time.

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

12. 2 Tinker GPIO connector Vcc,GND,SIG

14. Dual 2 pin connector for motor interfacing

15. Test Points for Vcc, GND, VIN.

16. On-board Power switch / connector for switch

17. On board 5V regulated DC Power with capacitors.

18. Dual Li-Ion 18650 Battery – Charging circuit not required.

19. Charger to be provided separately.

20. Connector for charge display module.