

MICROPROCESSORS

PROJECT

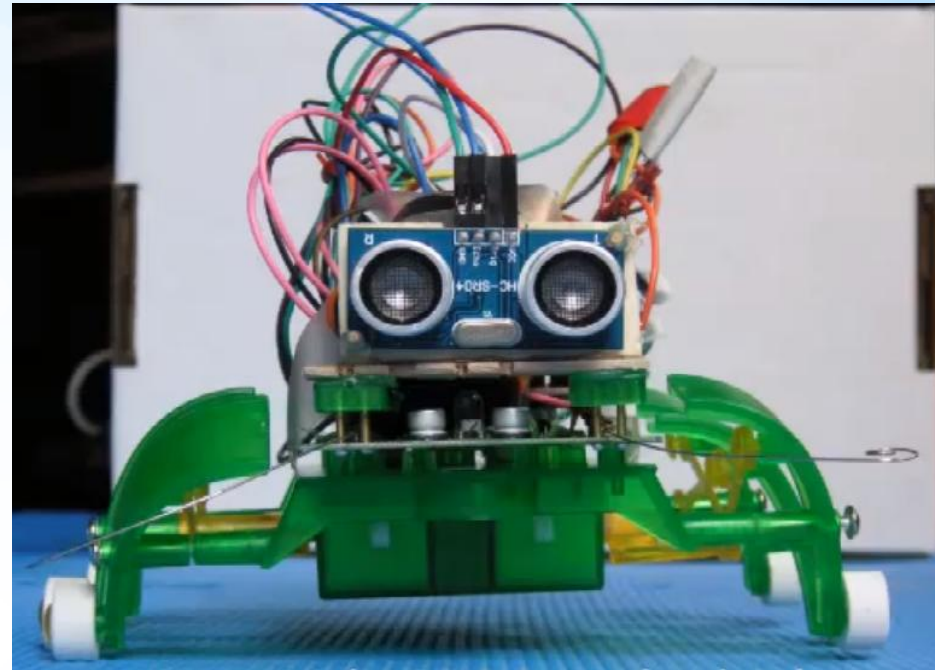
TOUCH TO SING

Carried out by

- Aniruddha Harish (G00858537)
- Ankit Gala (G00852236)
- Jaswant Katragadda (G00862743)
- Prashanth Prakash (G00858562)

OVERVIEW

- When turned ON
- Obstacle - vibrant colors
- Touch to play.



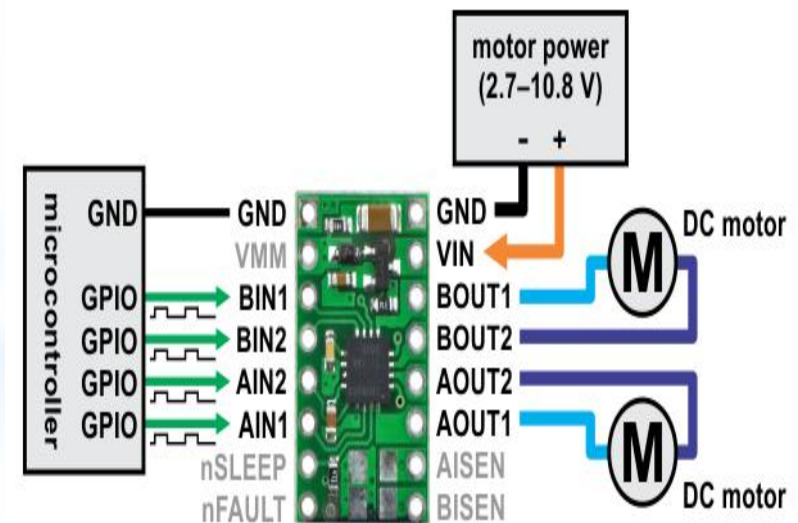
Components Used

- * Hexapod Crawler
- * MSP 430 Launchpad
- * Bumper Bug - Crawler
- * H-Bridge
- * Geared DC Motor
- * HC-SR04 Ultra Distance sensor
- * Capacitive Touch Booster Pack
(430BOOST-SENSE1)
- * Batteries
- * Jumper Wires
- * SD Card.

Geared DC Motor

- 12V 50 rpm Geared DC Motor
- Generating PWM to control and steer the device.
- Timer- A configured in MClk
- DRV 8833 dual motor driver carrier

DC 12V 50RPM



MSP 430 CAPACITIVE TOUCH BOOSTER PACK (430BOOST-SENSE1)

FEATURES:

Ultra-low power operation with 1.8v operation and $<1\mu\text{A}$ Average current per button.

Touch optimized peripherals with glue-less interface to touch sensors.

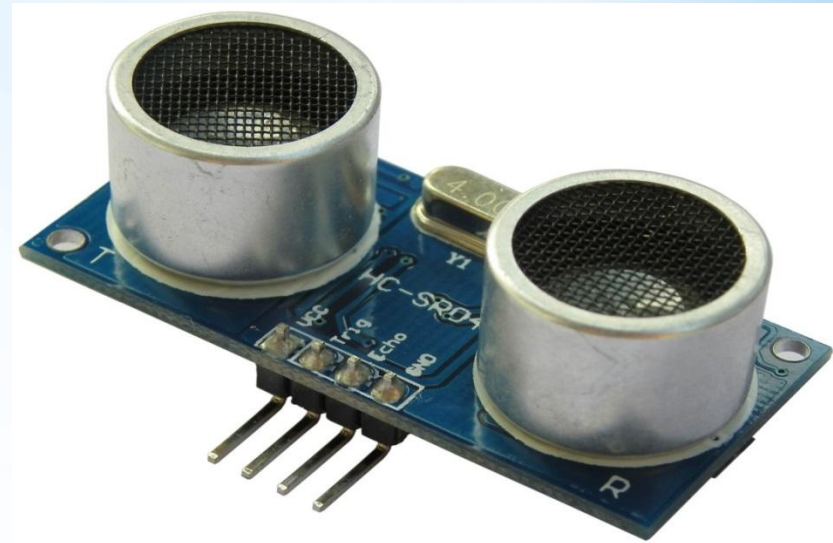
Free open source Capacitive Touch Software Library

Touch Pro GUI to evaluate, diagnose and tune touch sensors



HC-SR04 ULTRASONIC DISTANCE SENSOR

- Power Supply :5V DC
- Quiescent Current : <2mA
- Effectual Angle: <15°
- Ranging Distance : 2cm – 500 cm/1" - 16ft
- Resolution : 0.3 cm



- This sensor uses Sonar to detect distances.
- HC-SR04 is a 5 volt device (Challenging)
- Pins 12 and 13 of the Launchpad are hooked up to Trig and Echo on the HC-SR04
- Sensor transmits out 8 cycles of ultrasonic bursts at 40khz and wait for reflected sound.
- The code gets the distance from the sensor, then sends a TONE out on pin 10

Secure Digital Card

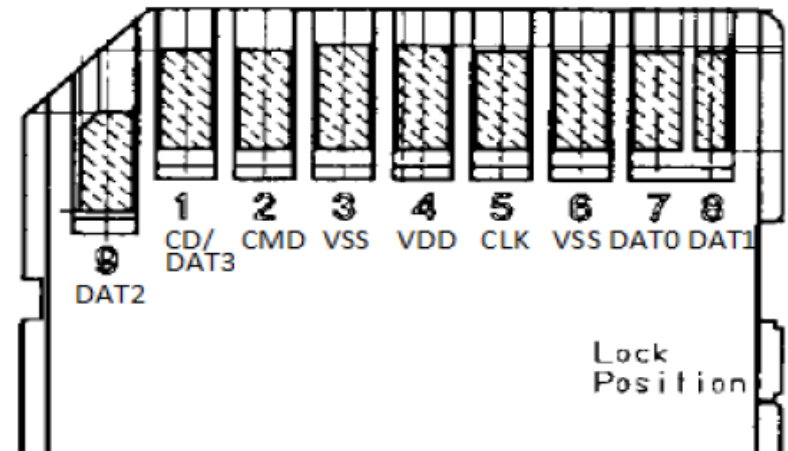


Figure 4.1 - SD Card Pin Out

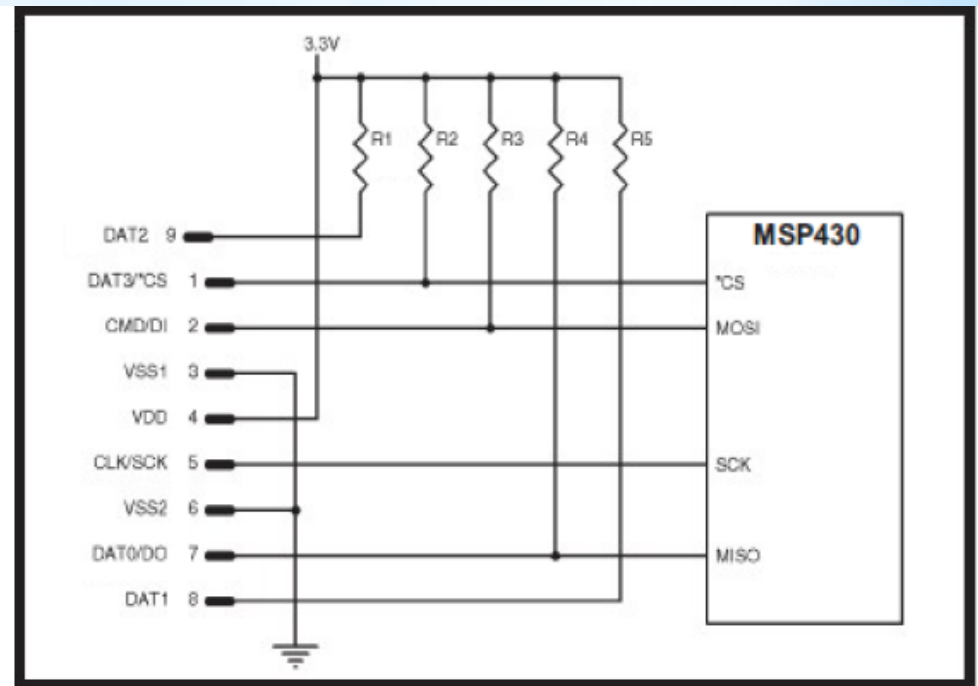
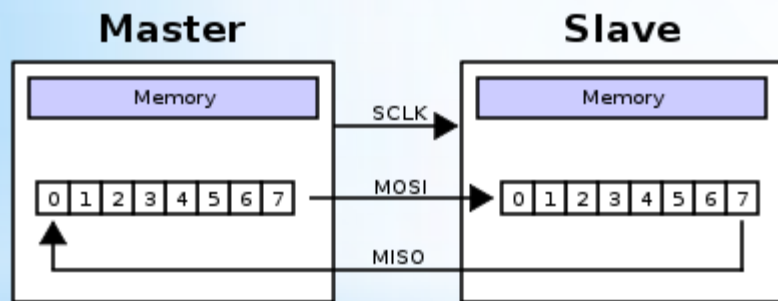
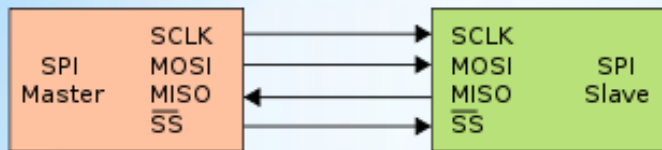


Figure 4.2 – SD Card Wiring Diagram

- * Why SPI? Why not I2C?

- * Challenges - SD Card.

- * Plan B - Use proximity sensor instead of a touchpad.

Use USB stick instead of a SD Card

THANK YOU