

# **Bluetooth controlled Toy car with Android app.**

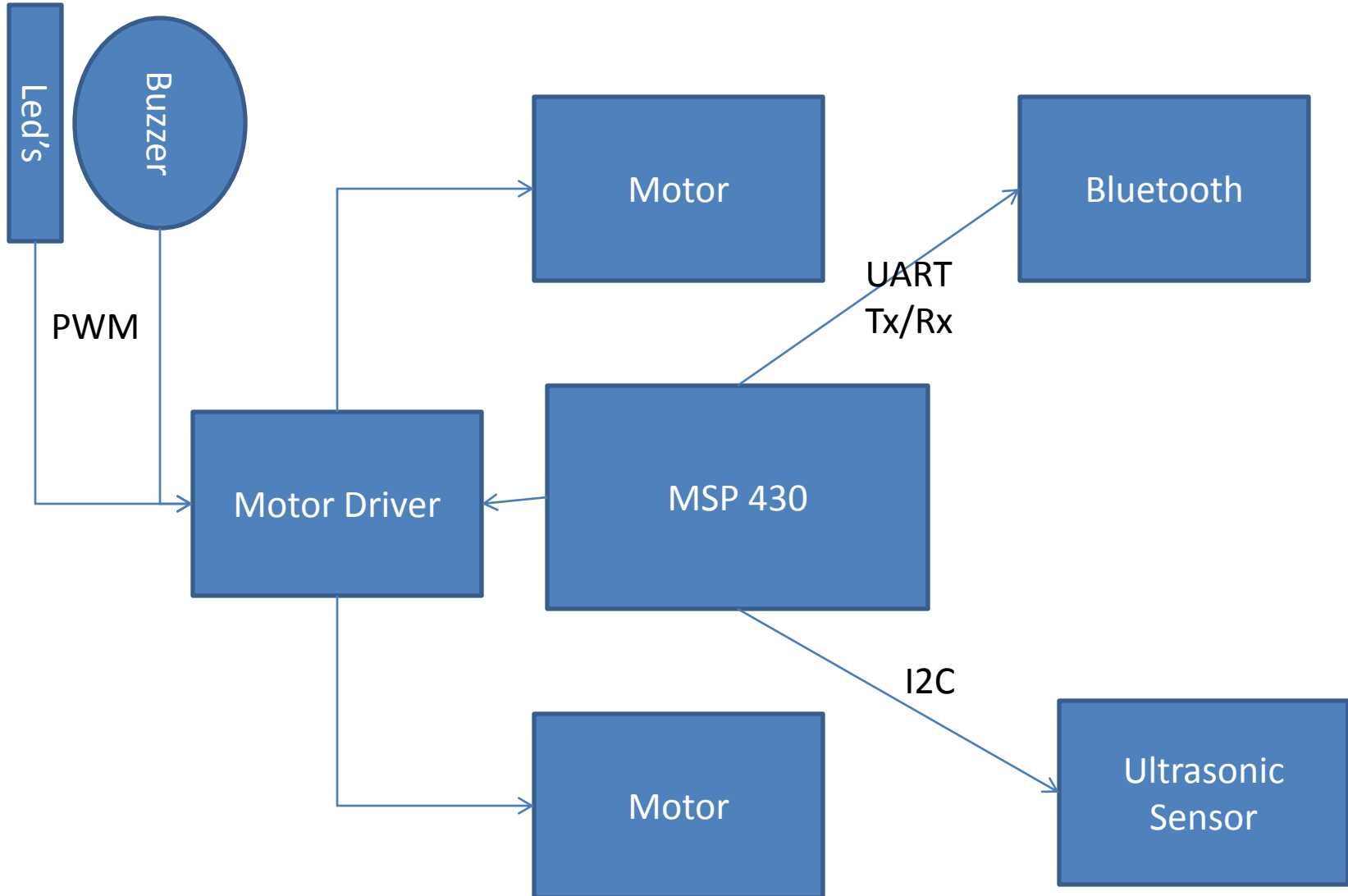
**Team members:**

Dheeraj Naga Prasad Kothapalli

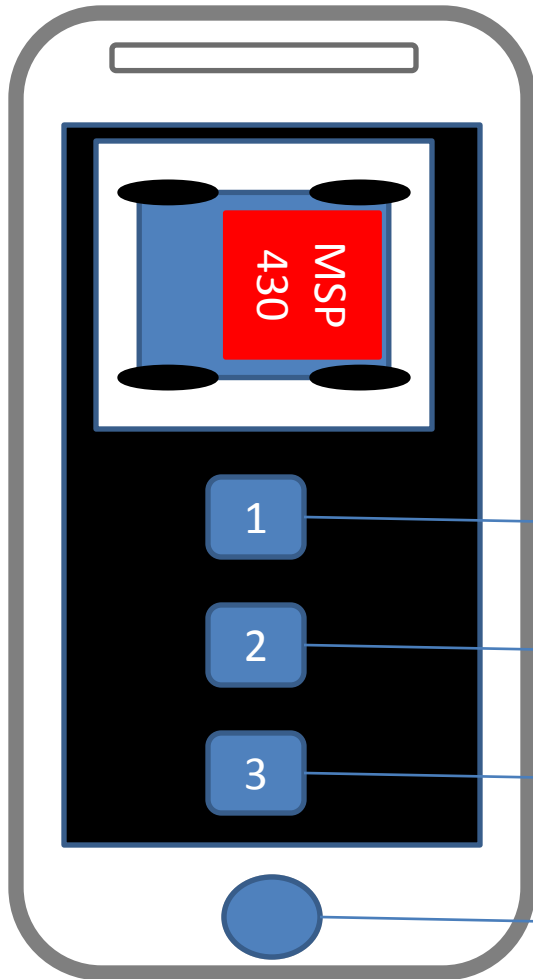
Naveen Chandra Vallurupalli

Viswanath Anudeep Belaganti

# Block Diagram



# Overview



- With the world moving into smart-phones this application makes use of Android for ease of use to interact with a toy car.

- This car works in various modes:

1

Attract mode

2

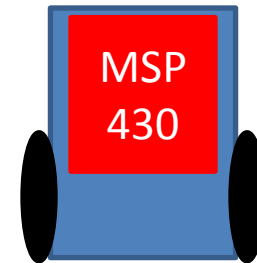
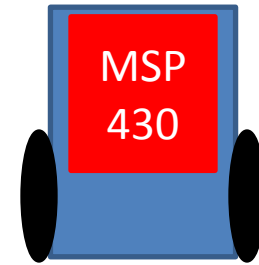
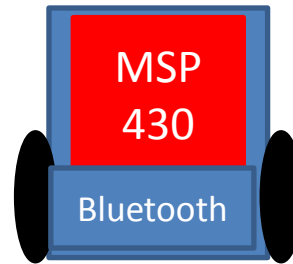
Bluetooth mode

3

Child Mode

Exit

# Bluetooth Mode



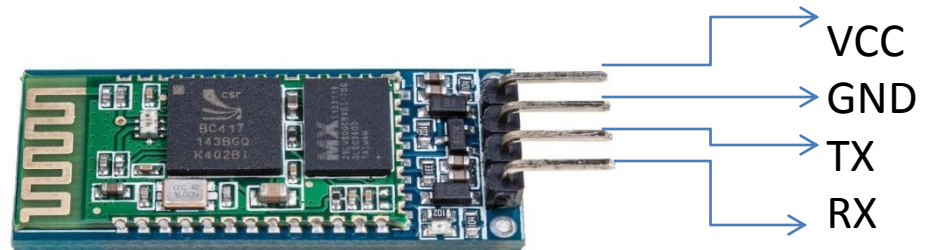
# Bluetooth Module (HC-06) and Interfacing

Name : Bluetooth transceiver HC-06

Bluetooth version: V 2. 0+ EDR

Power Supply:3.3V

Interface: UART



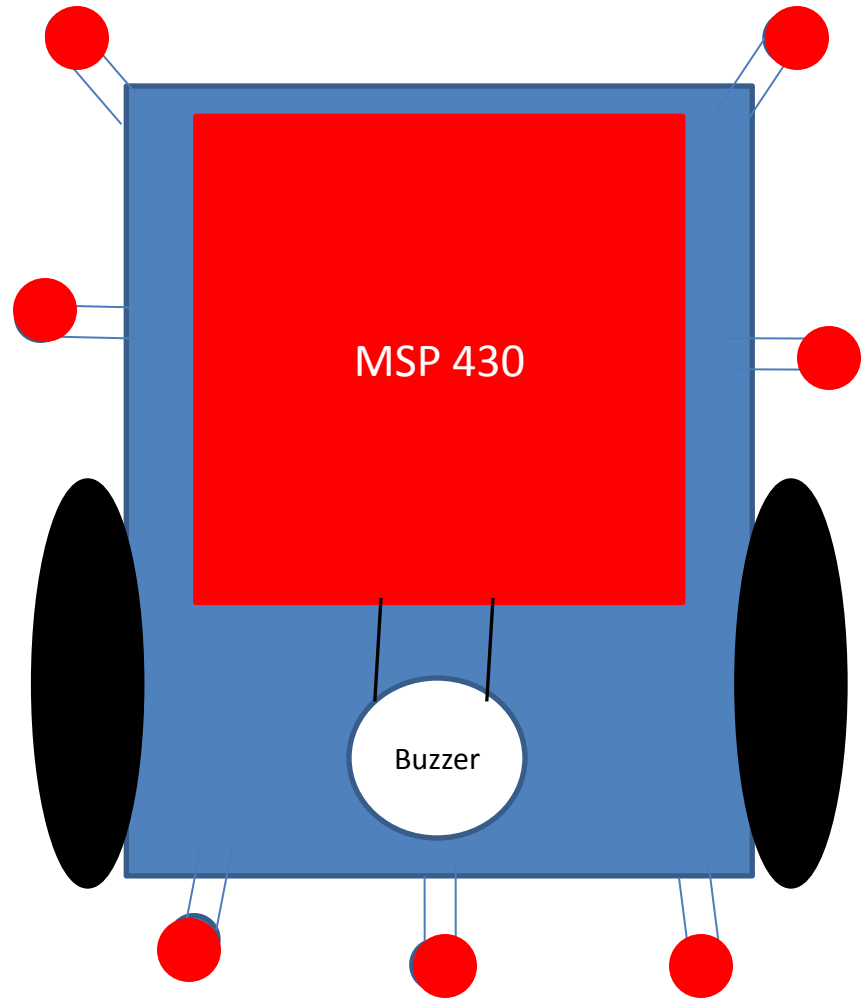
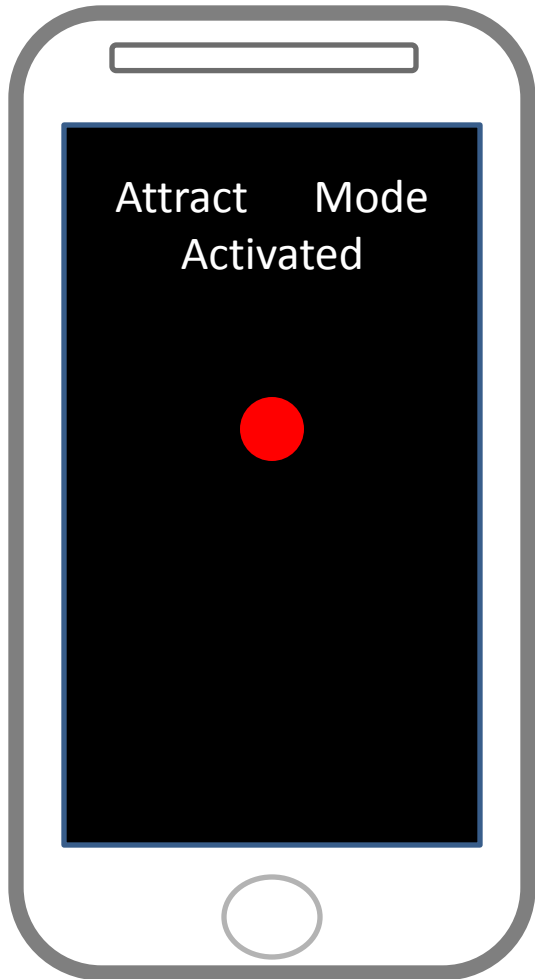
Connections on MSP 430: TX and RX pins

**Use:** To connect to the android app and get control signals.

**Challenge:** To interface with MSP 430 using UART.

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# Attract Mode



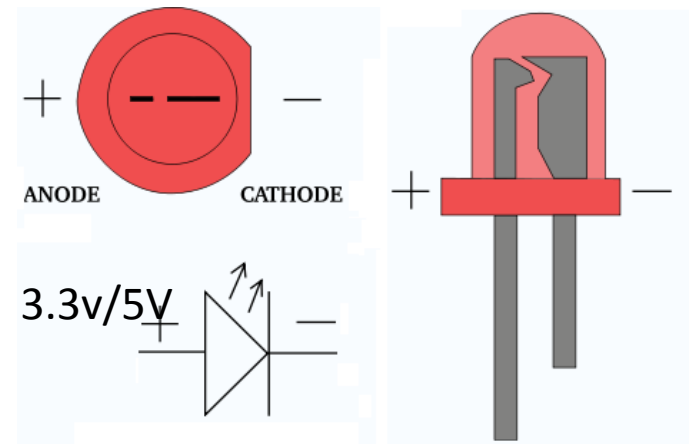
# Led's And Buzzer

**Type:** Passive

**Working principle:** Electroluminescence

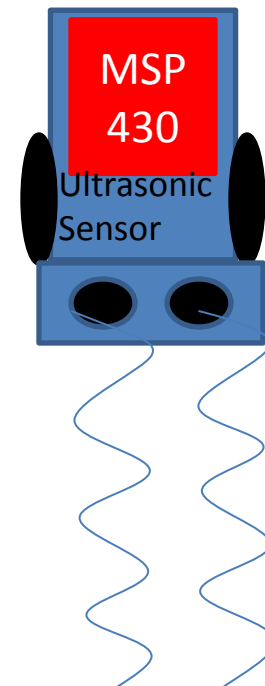
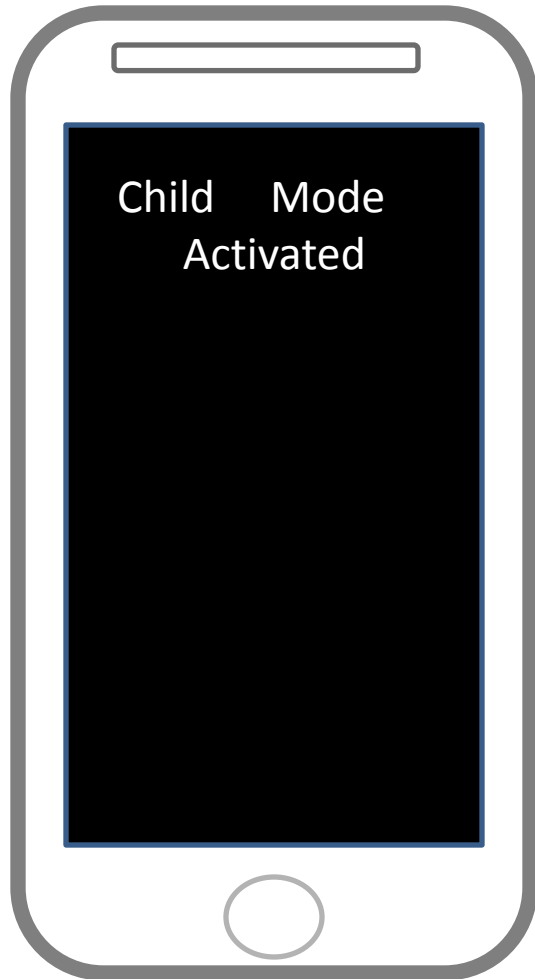
**Use:** The colorful Led's and the sounds from the buzzer attract's the child.

**Challenge:** To synchronize all the Led's to a blink pattern and buzzer.



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# Child Mode





# Ultrasonic sensor(HC-SR04)

## Specifications:

Power supply :+5v

Range :2cm-400cm

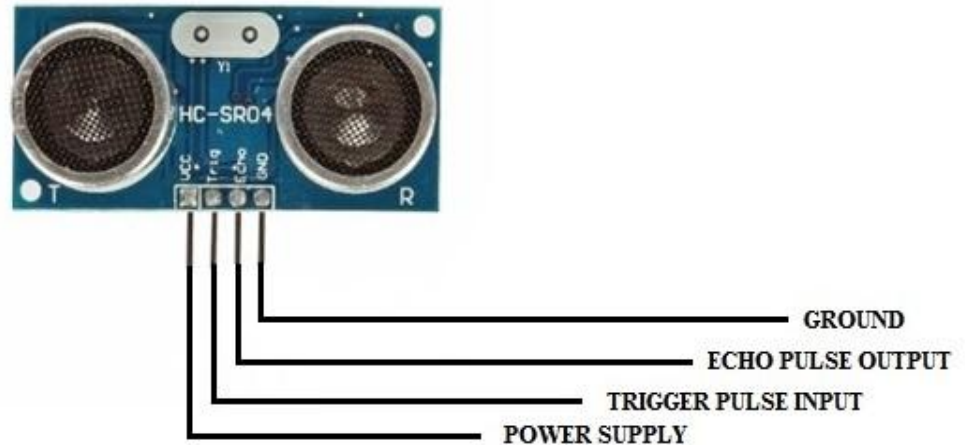
Accuracy:3mm

Measuring angle: 30 degree

Pins used : Digital Io Pins

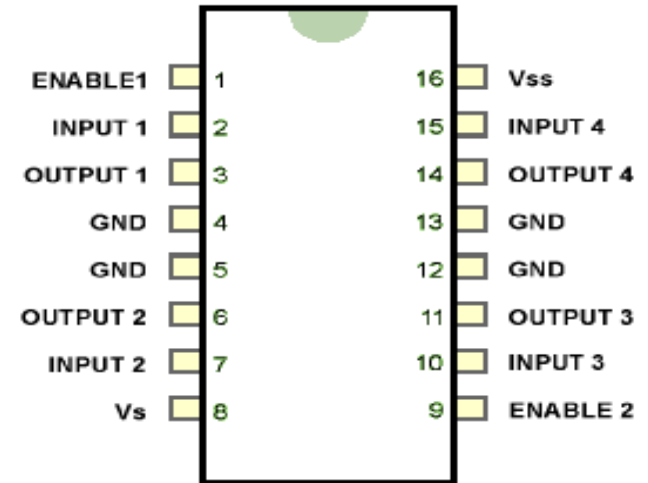
**Use:** To detect child following the car

**Plan B:** Use IR Sensor.



# Motor driver(L293D)

- 4 H-bridges => drive 2 motors
- characterized for operation from 0°C to 70°C.
- Pins used : Digital IO pins
- EN 1 controls output pins 1,2
- EN 2 controls output pins 3,4
- pin 16 to Vcc (=5V) and pin 8 to Vs (battery, 12V).



- Use:** A microcontroller can supply limited current, so in order to drive any heavy load requiring high voltage and current we need to connect a motor driver IC between the microcontroller and the load which in this case is a motor.



# Motor

- Interfaced with MSP430 through H-bridge IC L293D
- Used as rear wheel drive

**Challenge:** To interface 2 such motors with MSP 430 using the L293D Driver.



# Project Status

## Components:

- Bluetooth: Part Received, Under Testing
- Ultrasonic Sensor: Ordered
- Motor Driver: Part Received, Under Testing
- LEDs, Buzzer: Ordered
- Motor: Ordered

## Task Division:

- Dheeraj Naga Prasad Kothapalli : LED's and Buzzer interfacing, Testing
- Naveen Chandra Vallurupalli : Ultrasonic and motor interfacing , Debugging
- Viswanath Anudeep Belaganti : Android App (Development , Testing and Debugging) and bluetooth interfacing.

# Questions

- ??????????