

Bluetooth controlled Toy car with Android app.

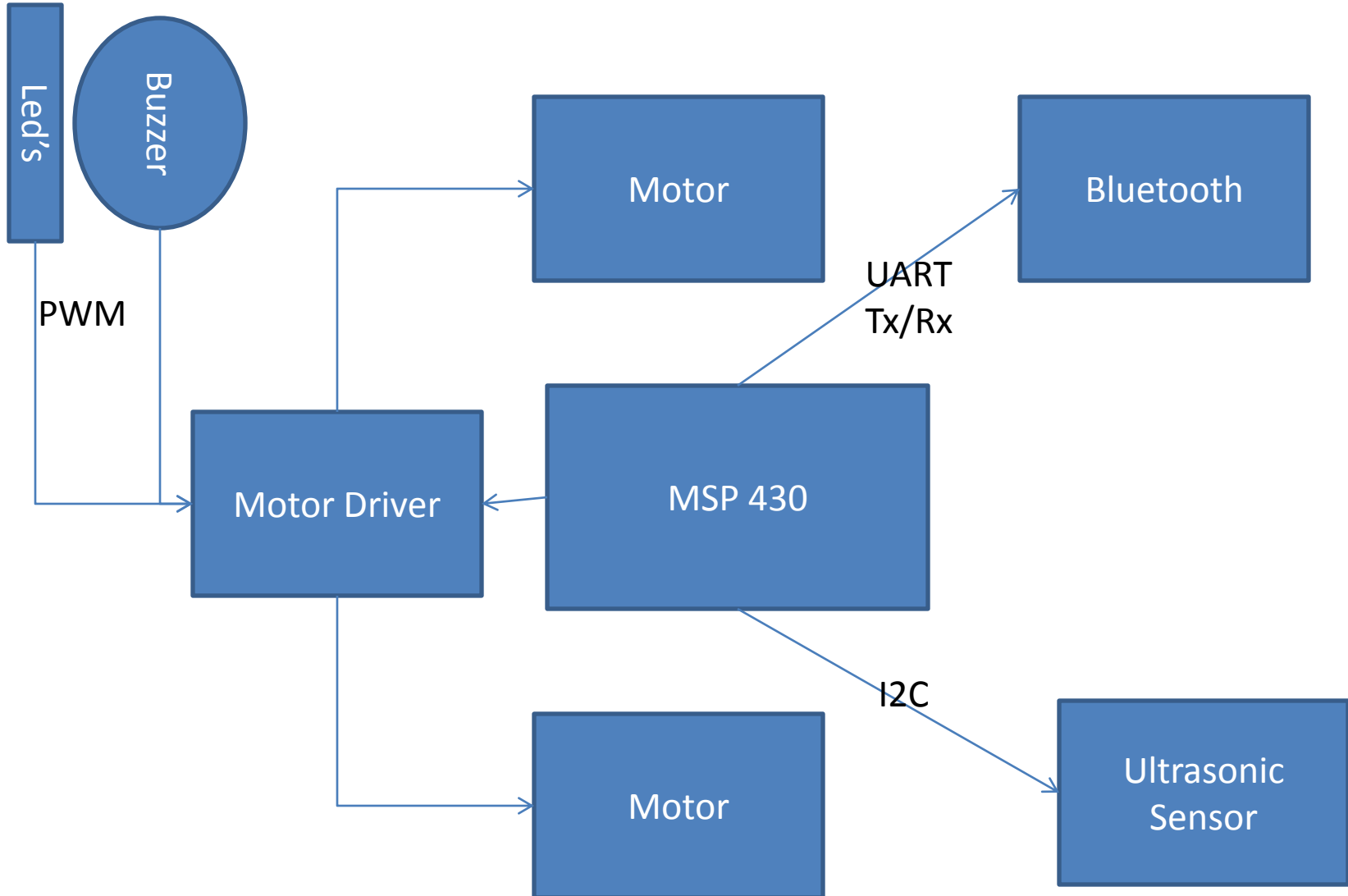
Team members:

Dheeraj Naga Prasad Kothapalli

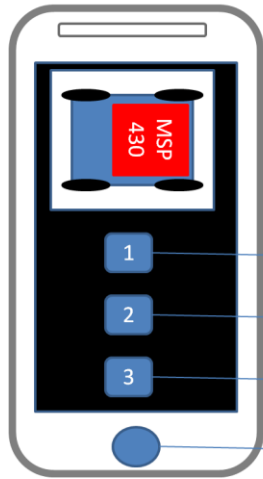
Naveen Chandra Vallurupalli

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:

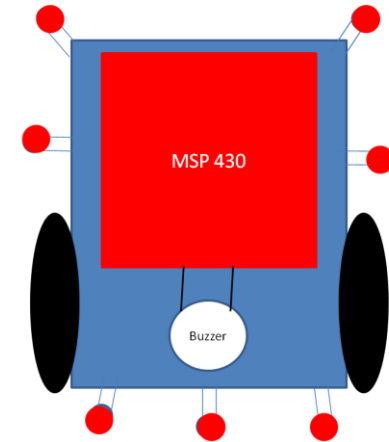
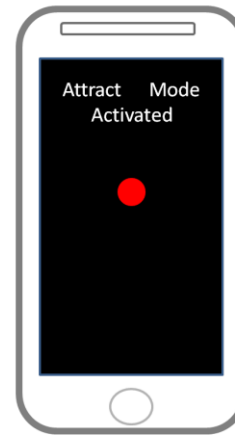
1 → Attract mode

2 → Bluetooth mode

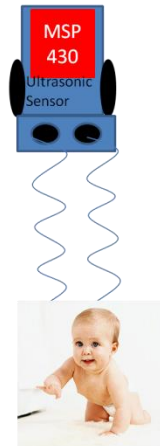
3 → Child Mode

Exit

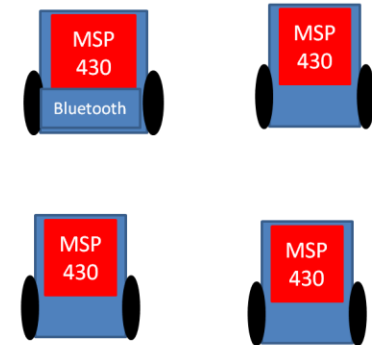
Attract Mode



Child Mode



Bluetooth Mode

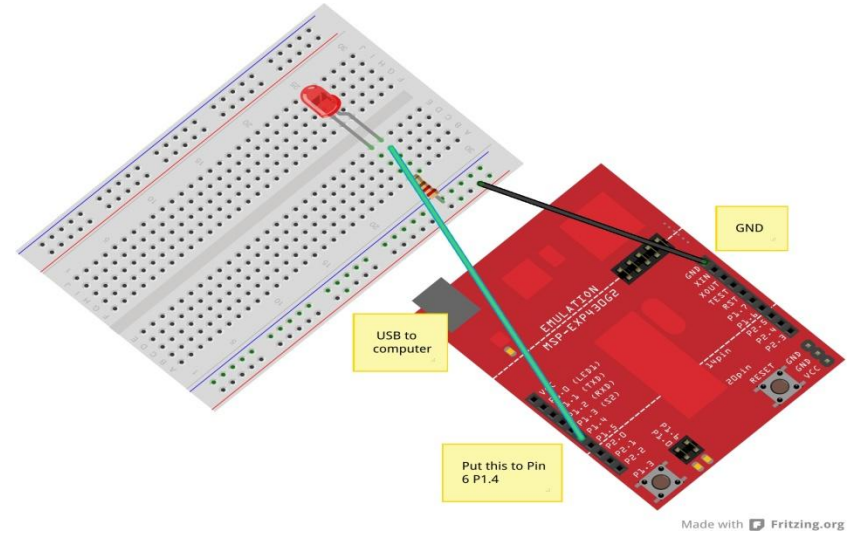


Overall Component Status

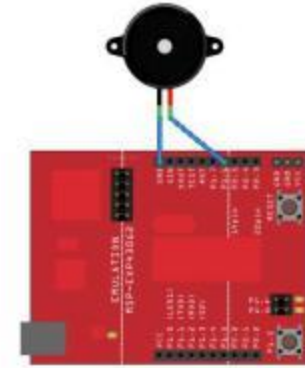
COMPONENT	STATUS
LED'S	TESTED AND WORKING
BUZZER	TESTED AND WORKING
BLUETOOTH MODULE(hc-06)	TESTED AND WORKING
L293D	TESTING
MOTORS	TESTED AND WORKING
ULTRASONIC SENESOR	TESTING

Led's and Buzzer's

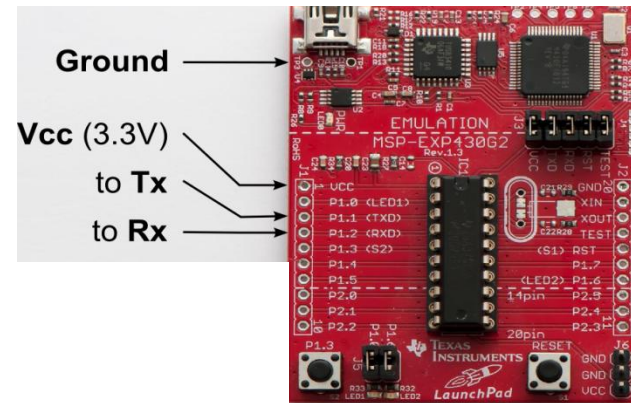
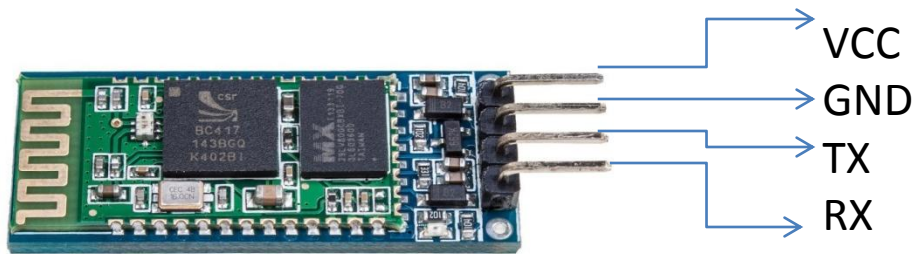
- Led's work on a 3.3 V and 5V supply.
- It connects to a GPIO port of MSP430.
- It is connected to ground via a resistor.
- Tested and working



- Buzzer work on a 3.3 V and 5V supply.
- It connects to a GPIO port of MSP430.
- It is been tested for an ON/OFF usage.
- Tested and working

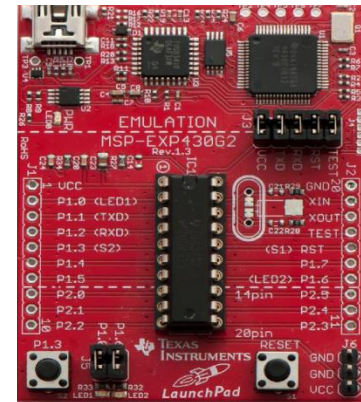
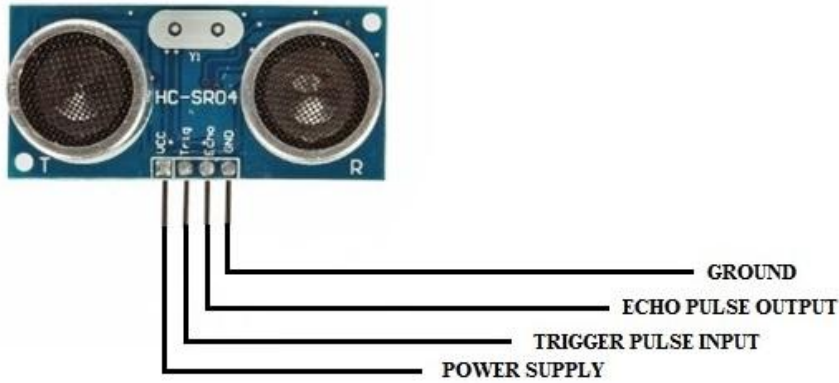


Bluetooth Module



- Bluetooth Module works on a 3.3 V supply.
- It connects to the TX/RX i.e P1.0 and P1.1 port of MSP430.
- It is connected to the power supply of 3.3V and ground.
- Communicates via Uart.
- Tested and working

Ultrasonic Sensor



Operating voltage – 5V
Communicates using i2c
P2.2 – trigger pulse input
P2.1 - echo pulse output

- Distance Measurement formula is expressed as: $L = C \times T$
- L is the measured distance,
- C is the ultrasonic spreading velocity in air,
- T represents time (T is half the time value from transmitting to receiving)

L293D

L293D inputs

P2.0 – 1A

P1.5 – 2A

P1.3 – 3A

P1.4 – 4A

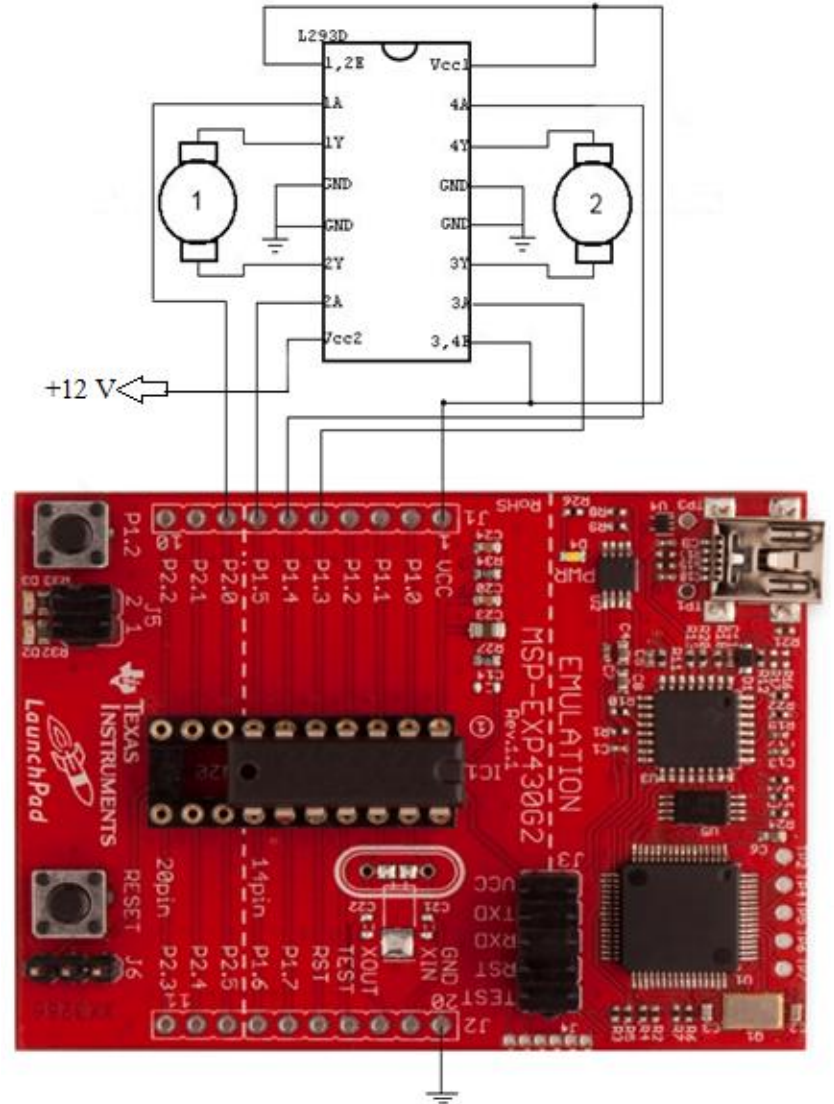
VCC 2 to 12 V (for motor power supply)

Motor 1 inputs

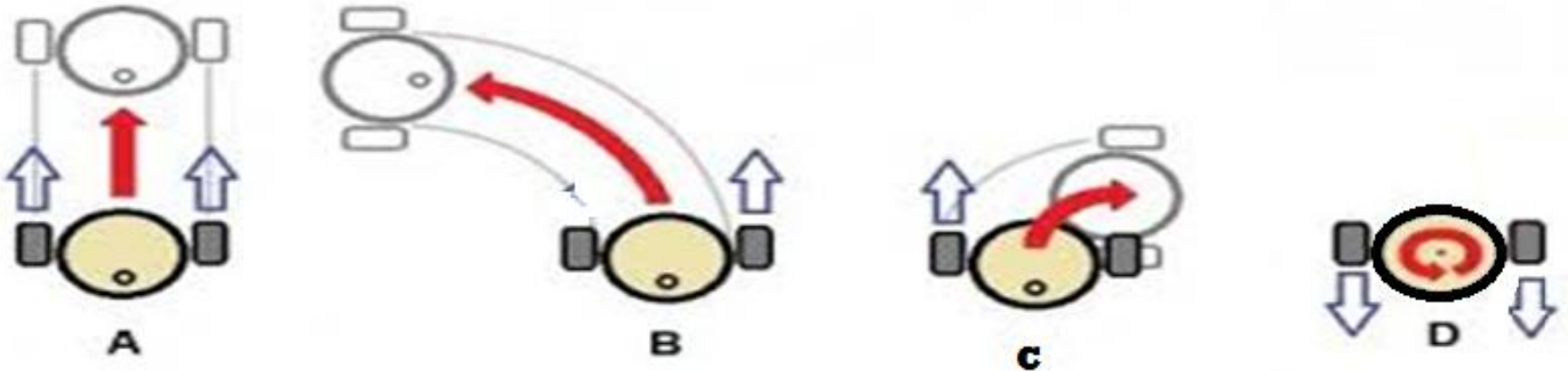
1Y,2Y

Motor 2 inputs

3Y,4Y



Motor



M1-A = 1 and **M1-B = 0** → M1 moves clockwise

M1-A = 0 and **M1-B = 1** → M1 moves counter-clockwise.

M2-A = 1 and **M2-B = 0** → M2 moves clockwise

M2-A = 0 and **M2-B = 1** → M2 moves counter-clockwise.

A

M1 – Clockwise

M2 – Clockwise

B

M1 - OFF

M2 - Clockwise

C

M1 – Clockwise

M2 – OFF

D

M1 – Anticlockwise

M2-Anticlockwise

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 ???