

# HANDY CAR

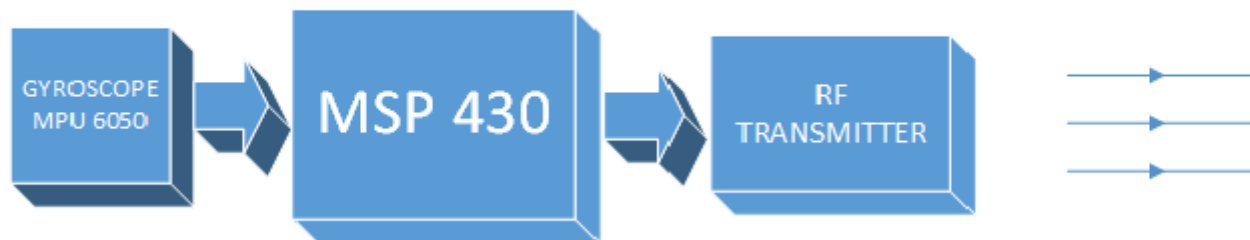
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## Group 8

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Sai Kasyap K,  
Urvi Tank

# BLOCK DIAGRAM

## Transmitter



## Receiver



# Overall Status

- > Gyroscope: It is interfaced and tested.
- > Motor: It is interfaced and stand alone testing is done.
- > Wireless module: Still needs to interface and test.

# GYROSCOPE

The Gyro used here is MPU6050.

INTERFACE :

I2C protocol is used.

Ports P1.6 and P1.7 are used for I2C communication.

The Gyroscope has a DMP.

Accessing the DMP would give highly refined sensor data.

PROGRESS :

Tested the chip.

Having issues connecting interfacing it with MSP430.

Successful in interfacing it with Arduino for testing purposes.

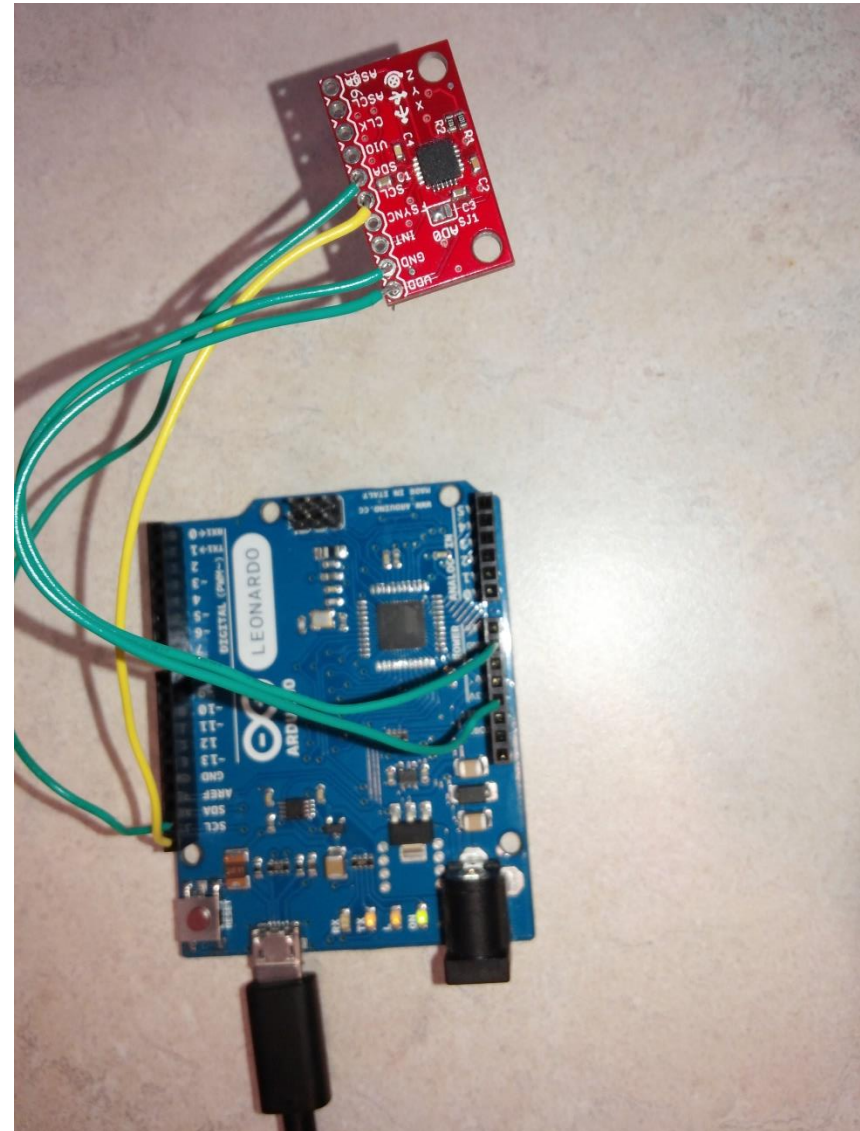
Working on the calibration part as well.

Accessing the DMP would give highly refined sensor data.

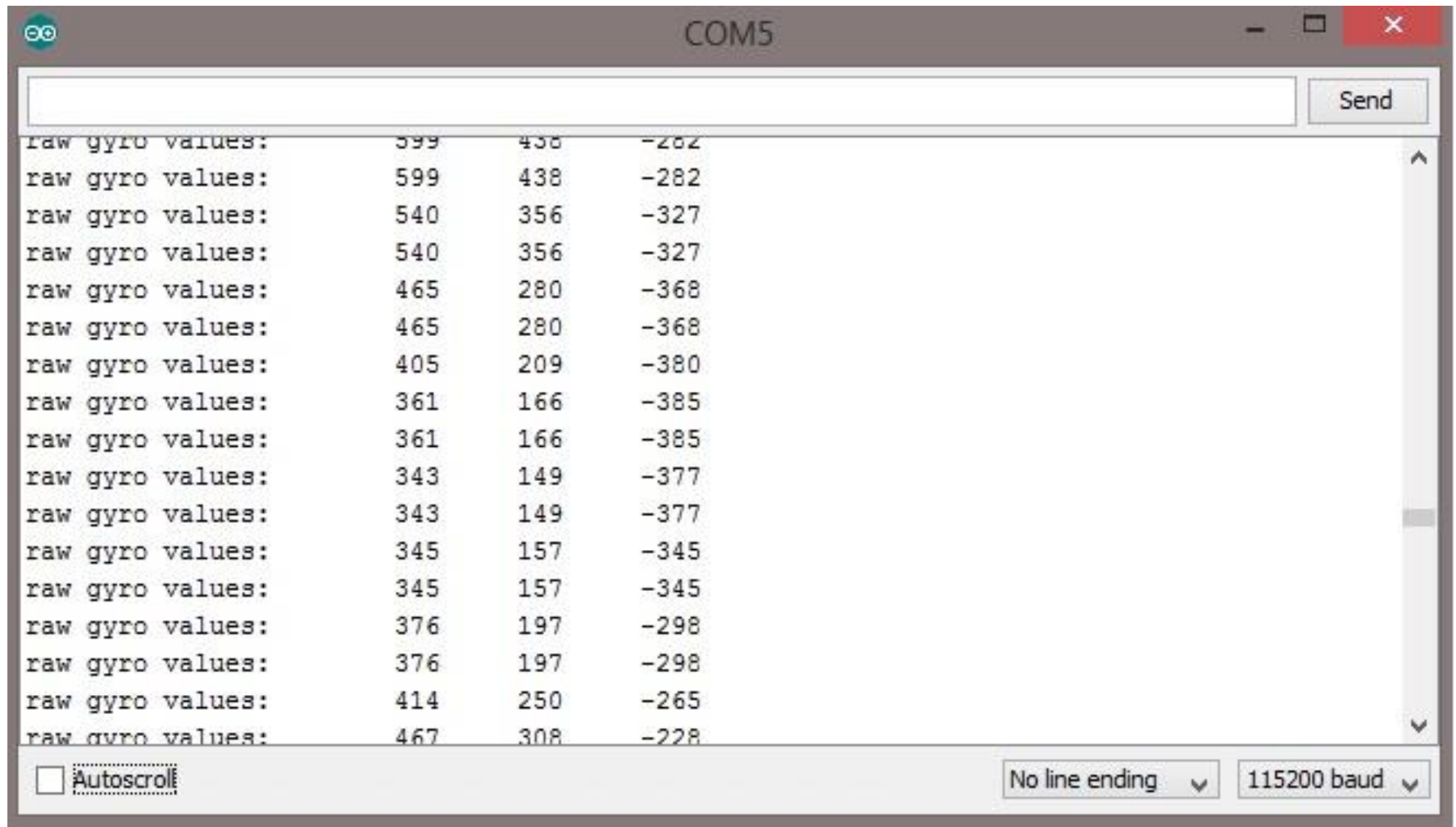
CHALLENGES :

Interfacing Gyro with MSP430 .

Calibrating the Gyroscope.



# RAW VALUES



```
COM5  
raw gyro values: 599 438 -282  
raw gyro values: 599 438 -282  
raw gyro values: 540 356 -327  
raw gyro values: 540 356 -327  
raw gyro values: 465 280 -368  
raw gyro values: 465 280 -368  
raw gyro values: 405 209 -380  
raw gyro values: 361 166 -385  
raw gyro values: 361 166 -385  
raw gyro values: 343 149 -377  
raw gyro values: 343 149 -377  
raw gyro values: 345 157 -345  
raw gyro values: 345 157 -345  
raw gyro values: 376 197 -298  
raw gyro values: 376 197 -298  
raw gyro values: 414 250 -265  
raw gyro values: 467 308 -228
```

Autoscroll

No line ending

115200 baud



# MOTOR & MOTOR DRIVER

Motor driver IC is SN754410

Forward and backward motion is driven by 9Vdc  
Motor.

Interface:

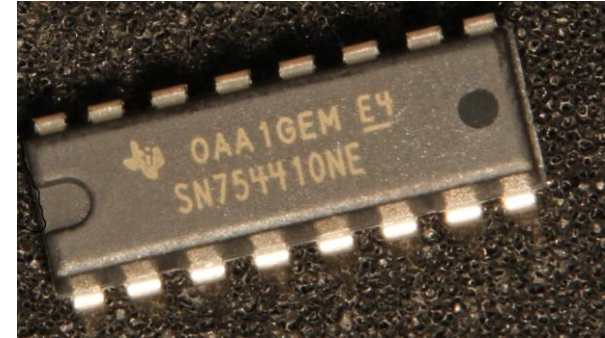
- PWM output via P1.2 timer A
- Pins P1.0 and P1.1 for control directions

Progress:

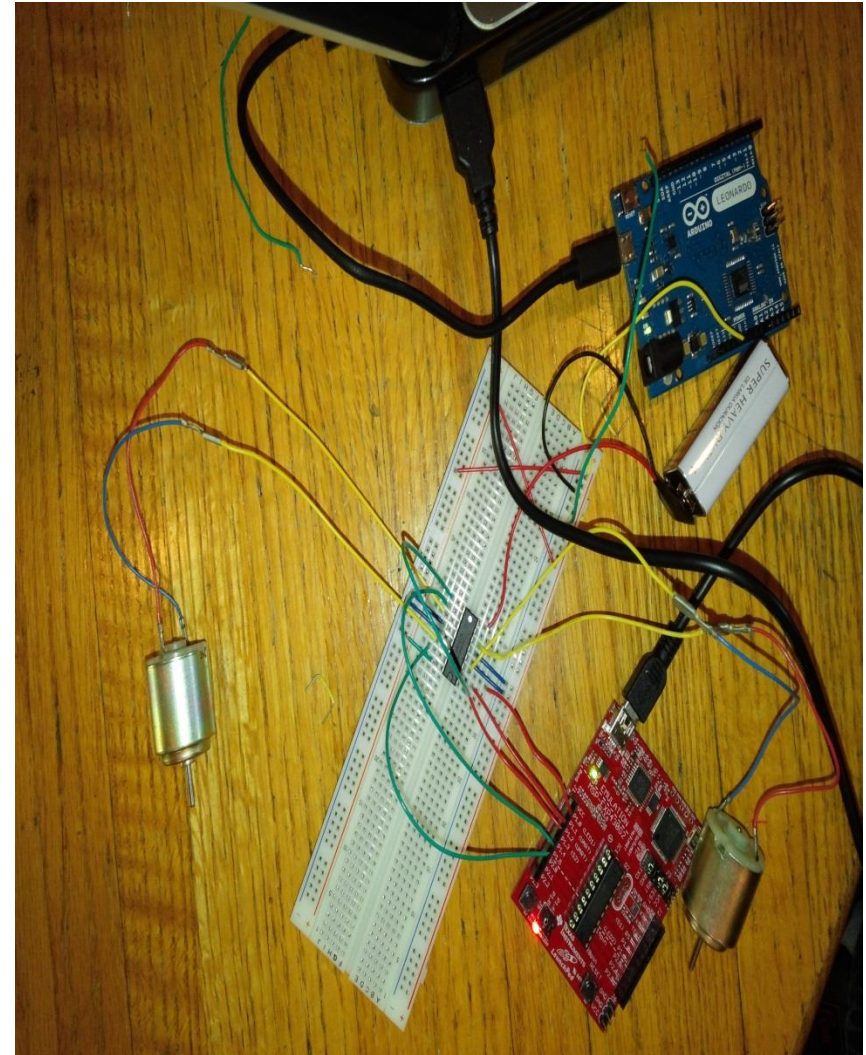
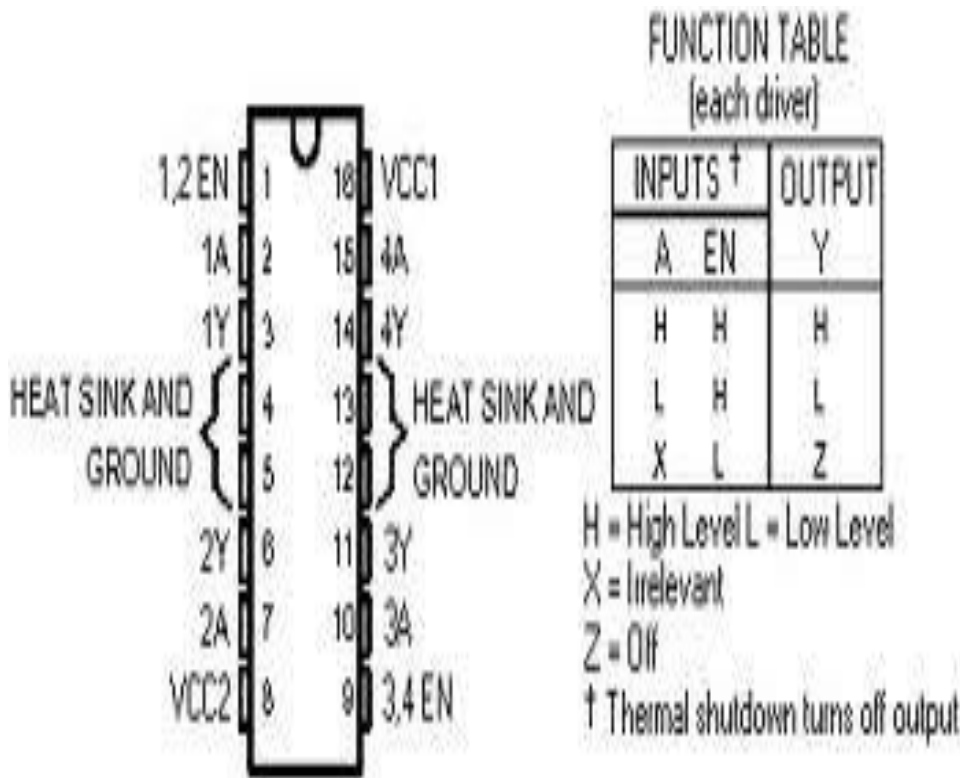
Standalone Testing of motors is done.

Challenges:

System integration



# Interfacing DC motor with MSP430 using H-bridge SN754410





# WIRELESS TRANSRECEIVER

## CC2500

- Frequency range :2400 – 2483.5 MHz
- It works in Half Duplex mode i.e. it provides communication in both directions, but only one direction at same time (not simultaneously). This switching from receiver to transmitter mode is done automatically
- Range : It is up to 30 meters



# Project Status

- Task Division
  - Arvin Asokan – Gyroscope Interfacing and Calibration
  - Nikhil Golani – Motor Interfacing
  - Sai Kasyap – Wireless Transceiver Interfacing
  - Urvi Tank – System Integration

## Plan B

Use Arduino instead of MSP 430 for transmitter and communicate arduino with MSP wirelessly

Thank you