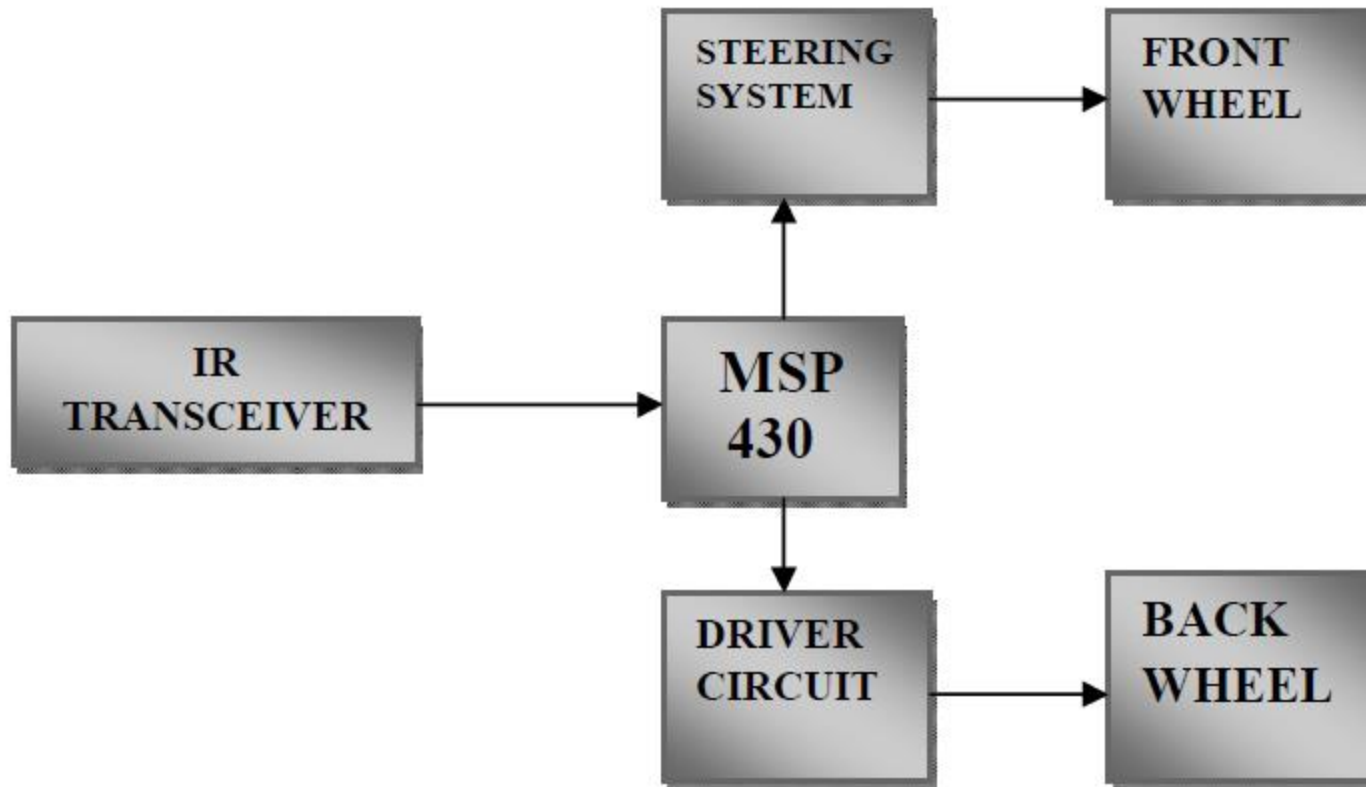


Obstacle Avoidance Car

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Hannan Shaikh
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Omkar Karmalkar

Project Progress Report 2
Fall 2013
George Mason University

Block Diagram



Overall Status

- IR Led and TSOP 1738 interfacing in progress.
- DC motor acquired and tested.
- PCB layout in progress.
- Steering Mechanism with servo motor pending
- Physically, car not yet built since chassis not acquired.

IR transceiver pair

IR LED sends IR pulses which reflect back if the obstacle is present

Receiver detects the reflected pulses and alerts the MSP430

TSOP1738

- Photo-detector & preamplifier in one package
- Active Low operation
- High immunity against ambient light



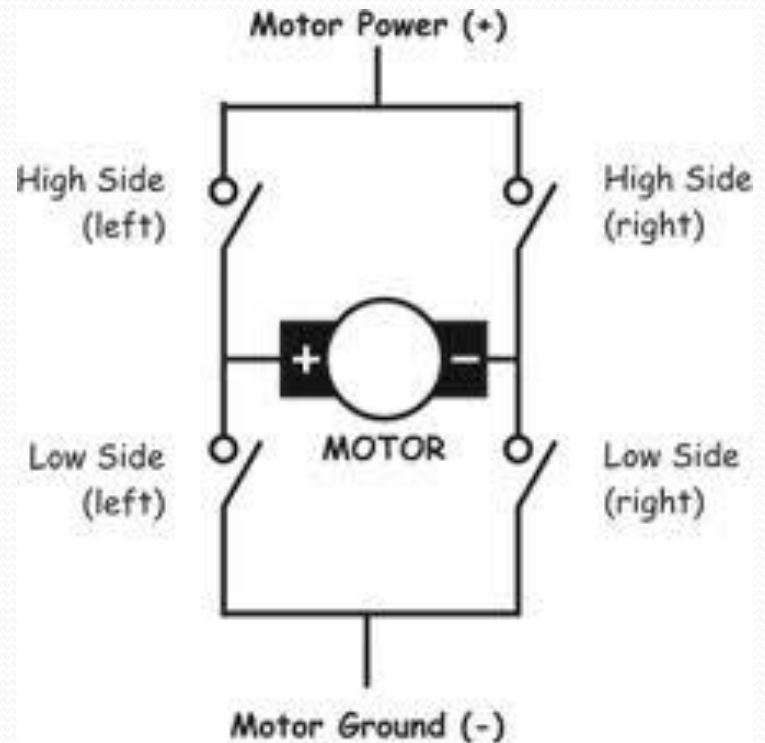
H-Bridge L293D

Used for clockwise & counter-clockwise
Rotation of DC motor

Boot current to drive motor

IC L293D provides H Bridge
functionality

Minimum high input voltage is 2.3V



DC Motor

Interfaced with MSP430 through H-bridge IC L293D

Used as rear wheel drive

Speed: 60 rpm



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Servo Motor

Used for steering purpose

To be interfaced with MSP430 through Timers

Operating voltage: 4.8 to 6 V

Pulse width control of 1500 to 1900 micro second



Challenge

- PWM controlled servo motor

Progress with Components

Component	Status
IR Led and Tsop 1738	Acquired
DC motor and L293D	Acquired and Tested
Chassis	Ordered
Servomotor	Ordered
Lego for Steering	Ordered

Task Division

- Anish : Coding & Debugging,
- Pushkar: PCB designing, Hardware Assembly
- Omkar: Microcontroller initialization routines
- Hannan: Sensor testing, interfacing.

Alternative plan

- To opt for caster wheel in case steering mechanism/servo motor fails.



Thank You!