



Capacitive Touch Controlled Vehicle

Progress Report 2

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ECE 511

RF Transceiver (ez430-RF2500)

– Hardware:

- An MSP430 interfaced with a CC2500 RF Chip
- Uses a 4 wire SPI link and two interrupt lines between the two chips
- P3.0-P3.3 used for SPI Link: SIMO, MISO, Clock, and Chip Select
- GDO0 and GDO2 used for the two interrupt lines
- Operates between 2400-2483.5 MHz (~2.4GHz)

– Software:

- One interrupt is used when a message is being received which is activated from the CC2500 to the MSP430.
- The other interrupt being activated when a message is being sent from the MSP430 to the CC2500 to wake it up.

– Progress:

- Chip has been tested and is ready for integration with the other components
- Able to send and receive data between the two nodes
- Able to parse the data out of the 20 byte payload and read it

– Challenges:

- Potentially an integration issue being the MSP430 onboard this chip is a different model than the one being used for the other components

Capacitive Touch BoosterPack (430BOOST-SENSE1)

- **Hardware:**
 - Interfaces with MSP430G2452
 - Port 1 – Drive the LED's on the BoosterPack
 - Port 2 – Drive the Wheel and Buttons
- **Software:**
 - Watchdog Timer and Timer A0 used to determine the capacitance of each individual button. Watchdog determines window of measurements while number of counts with Timer A0 within window represents capacitance.
- **Progress:**
 - BoosterPack is being tested.
 - Able to toggle corresponding LED when only using one button is implemented
 - When multiple buttons are configured, LED won't light up correctly.
- **Challenges:**
 - Get Multiple buttons on the BoosterPack to work Simultaneously
 - Wheel action to represent a clockwise or counterclockwise action

Project Status

- Wireless Component
 - Chris Lloyd
 - RF Transceiver (ez430-RF2500)
- Capacitive Touch
 - Jason Esquivel
 - Capacitive Touch BoosterPack (430BOOST-SENSE1)
- Robotic Vehicle
 - Changha Jun
- Overall Progress
 - Process of Integration with different components