Chris Halseth

WPR 2014-10-26

Last Week

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Designed, simulated PCB antenna and matching network

Implemented full RF section in schematic/layout (chip->balun->match->antenna)

Tested CC430 dev kit functionality (\*see issues)

Wrote simple program for turning on/off LED on dev kit with switch using CCS(TI IDE)

Created low cost resistive button prototype, tested on Arduino platform, decent results

Next Week

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Isolate emulator/programming interface on dev kit for breakout

Set up dev kit to pass serial information via USB

Implement resistive button prototype in layout

Issues

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Dev kit unable to connect wirelessly using demo program, strongly suspect radio is damaged on base board or

satellite. Recommend RMA ASAP so I can hash out/test wireless protocol in functioning environment.

Last Week (2014-11-02)

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Isolate emulator/programming interface on dev kit for breakout

Set up dev kit to pass serial information via USB (software written not tested)

Ordered new dev kit

Next Week

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Implement resistive button prototype in layout

Test serial interface when dev kit arrives and verify wireless link

Reoptimize antenna with current layout

Issues

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Dev kit RMA slowed things down

Competing responsibilities this week pushed layout work out

Need to hash out serial interface data spec so front/back end has a unified design goal

Last Week (2014-11-09)

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Layout work..a lot of it. Design finished, shipped.

Implemented resistive button layout.

Re-optimized antenna for current layout.

Setup serial interface on dev kit.

Tested wireless link, failed to connect.

Hashed out rough outline of serial comm spec with team.

Next Week

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Isolate wireless connection issue(hopefully fix).

Write interrupt, operation, sleep routine skeleton.

Create fake data spew program for base board to provide a test basis for front end.

Issues

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Second dev kit came in, same issue as last. EMI?Requires troubleshooting.

Will need access to a VNA and surface mount SMA launches when boards come in for match network cal.

Time, sleep, moral, etc.

WPR 2014-11-16

Last Week

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Isolated wireless network connection issue and fixed.

Created functional skeleton program-- Sleep->ButtonInterrupt->Wake->TX->Verify->Sleep

Used/modified SimpliTI API to create robust network to handle errors and reconnects.

Worked on fake data program (unfinished)

Worked on isolating satellite device address from incoming packets on base station(unfinished)

Scheduled VNA access for Friday 21Nov (antenna verification, matching network optimization)

Next Week

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Finish data spew program and pass off

Test antenna on VNA (cross fingers ADS is semi accurate with my models)

Calculate matching network from VNA measurements

Stuff board on Friday

If TagConnect cable shows up finally, program a board and do some verification

Issues

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TagConnect cable not here yet.

Three weeks.... lot of unknowns and lots to do.

Isolating device address on incoming packets taking a bit of API/network layer rewrite, time consuming.

Simultaneous device support tests not really possible (eg. we don't have 500) don't know how to test currently besides using a separate device to flood the channel, but this is a bad approximation because it isn't exercising base station handle of many tokens/frame scheduling/etc

WPR 2014-11-23

Last Week

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Data spew program cancelled due to priorities, text file substituted

VNA tests on one board, antenna trimmed and match calculated

Two boards stuffed

Hacked together preliminary firmware for satellite, initial tests good(yay network works)

Next Week

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Get functional versions of base and satellite code up and running

Troubleshoot issues as they arise

Hand off system for testing

Issues

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Bit of a non-issue but noticed the trimmed antenna is worse than untrimmed antenna in RSSI, perhaps VSWR measurement was fouled by proximity of SMA cable port.

Last Week (2014-11-30)

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Wrote and tested functional base station code

Wrote and tested functional satellite code

Performed preliminary range tests

Handed off functional satellite/base combo for testing with GUI frontend

Troubleshot button code glitch

Next Week

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Get ESD protection on boards

Test/verification/load firmware/(repair if needed) next two boards

Test cases and measurements with batteries installed

Clean up project code and have a team review for it

Last Week (plus most of another, finals) (2014-12-12)

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Firmware load/test/verification/repair of other two boards

Test cases and measurements with batteries installed

Cleaned up project code and have a team review for it

Modification to base station to handle 100 devices

Test code created for 100 device verification

Bug squashing on satellites and base station

Sleep between blinks code to save battery implemented

Presentation preparation

Presentation delivered

Mostly maintained sanity

Kyle Lu

Last Week (2014-10-26)

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Finished schematic

Completed BOM

Next Week

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Order Parts

Order Boards

Issues

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Decide on Tag-Connect

Decide on Tx enclosure

https://ssl.gstatic.com/ui/v1/icons/mail/images/cleardot.gif

Last Week (2014-11-02)

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Started PCB Layout

Edited schematic per suggestions from ADG

Next Week

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Finalize PCB layout (due Wednesday)

Finalize BOM

Design for test review

Issues

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Delayed Digikey parts order until final board review from team + ADG

Last week (2014-11-9)  
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Continued working on layout/editing (push-pull-push-pull)  
Submitted PCBs to OSH Park.  
  
This week  
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Order parts  
Look at GUI?

Last Week (2014-11-16)

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Ordered Parts

Created System Level 0, Level 1 Diagrams

Created UML Model of Button Press Activity

This Week

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Stuff Boards

Debug Boards

Create a Test Plan

Create Validation Documentation

Issues

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Must add CR2032 battery costs to BOM

Only 3 weeks left.

Last Week (2014-11-30)

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Formalize test plan documentation

Defined scope of test plan

Linked 'design' documentation

Linked 'other' documentation

Linked FCC & Industry standards documentation

Assigned test case #s

This Week

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Stuff two additional boards

Review system documentation & verify req'm are met

Perform test cases & record results

Issues

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Last Week (2014-11-21 post hoc)

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Stuffed 2x boards for test & debug

This week

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Thanksgiving

Issues

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This is a post hoc WPR.

Last week (2014-12-12)

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Prepared presentation

Delivered presentation

Closed outdated action items on github

Went to many ece 411 presentations throughout Thursday and Friday.

Downloaded and installed gui on multiple computers to ensure that it works on different machines.

Issues

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Failed to meet sleeping requirements.

Failed some coffee requirements.

Finals or presentations every day (except) Thursday.

Michael Schmidt