

EE / CprE / SE 491 - sdmay18-13
Determining voltage and Wire Continuity
Report 3

2/9 - 2/23

Client: Grace Engineering

Faculty Advisor: Nathan Neihart

Team Members:

Mohamed Almansoori - Report Manager

Aaron Eaton - Chief Engineer

Matt Kelly - Meeting Scribe

Sam Kline - Meeting Facilitator

Chris Williams - Test Engineer

Accomplishments

Completed Coupled Power Calculator so we can input information for a coupler and a signal and find expected values that we can validate in simulation and in testing with actual coupler. - Aaron

Pending Issues

Need to get a license to use ADS to simulate directional coupler circuit for wire continuity. - Aaron

Individual Contributions

Team Member	Contribution	Hours Worked	Total Hours
Mohamed Almansoori	The past week we be began doing the software setup for the wire continuity circuit using the TI Launch Pad. We also got together and talked about what needs to get done on the software side of things and began implementing the parts as it will be arrived next week. Finally, we will be working as a group on designing a PCB to make connections easier in the long run.	12	18

Aaron Eaton	Fixed Coupled Power Calculator spreadsheet to allow user to easily input values for different couplers, frequencies, and input power, and added a graph to visually represent data. Filled out an evaluation license to use ADS software to simulate circuit. Watched ADS tutorial videos in an attempt to be able to use it if we get a license. Found a new coupler on RF Mini-Circuits that should work better than old coupler. Coupler is ADC-6-1R+, cost is ~\$8	5	11
Matt Kelly	One issue we were worried about was the large power dissipated through our input resistor that is before the op amp. One way to reduce this power dissipation was to make a voltage divider, but a larger wattage resistor could just be used instead. Our next plan is to take 10s of measurements over several cycles (~5) and then use a best fit sine wave and calculate the error along with estimating the rms value by doing the root mean square.	6	14
Sam Kline	Finding and importing math library so we can use trig functions and determining their accuracy. Looking at different clocks provided by the board and how to use them.	4	15
Chris Williams	Finalized circuit diagram for voltage reading circuit in	16	32

	multisim, including specific parts. Thoroughly tested circuit design. Investigated possibility of using an opto-coupler for electrical isolation.		
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Plans for Coming Week

Make PCB Design - Chris

- Use multisim tool to make board
- Confirm Parts we need to use via the design
- Order parts

