

Summary of Progress:

Our group proposed a circuit diagram for measuring voltage but determined it would not work, which will help narrow our search for a solution. All group members spent time learning more about delta and wye connection systems for 3 phase voltages.

Pending Issues:

- The proposed block diagram for measuring AC voltage using Arduino.
- Need a voltage solution that will not produce too much heat and doesn't need to use a ground wire
- How can we implement the TDR (time domain reflectory circuit) for checking wire continuity.

Plans for Upcoming Report Period:

Voltage:

Create circuit diagrams for any methods that we have identified that could be used to measure voltage. These approaches include using delta-y transformers and measuring voltage relative to the Arduino's ground.

Wire Continuity:

Research how Time Domain Reflectometry can be used to determine wire continuity. Determine its feasibility in the context of our project and identify any issues that could prevent us from using this approach.

Individual contributions and hours worked:

Mohamed Almansoori:

5

Researched more into different methods we could use for measuring the voltage in a 3-phase system. I read the Electric Circuits book to learn how the wye configuration vs delta configuration differ in measuring the voltage in a 3-phase system. I find out that we need to use the wye connection for voltage measurements as the most common building electric service in North America is 120/208 volt wye. Also, I have worked in the timeline for the project plan which needs to capture the list of tasks to be completed, the dates on which the tasks need to be completed, the expected duration of each task, and dependencies between tasks.

Aaron Eaton:

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Read through the patent sent to us to understand more about how we could solve our problem. Found out they used capacitors and an oscillator to measure the continuity of the wires. Researched inductive coupling as an option to solving the wire continuity. Found out we would want to read the inductance of the wire by sending a signal down the wire and interpreting the signal we receive to determine the inductance of the wire. I am not sure how we would interpret

the date we receive. Researched circuits that can measure voltage like multi meters and voltmeters to understand how to measure voltage easier.

Matthew Kelly:

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Looked into the difference between a delta and wye connection system for 3 phase voltages. I looked over the patent sent to us by the client to somewhat understand what others have done. This was mainly to know what how to avoid patent infringement. I also looked at how wire continuity works using a multimeter.

Samuel Kline:

4.5

Started learning basic electrical engineering information including the function of some common electrical components and how to draw them in a circuit diagram. Worked on the group website and posted all necessary team documents and member information. Attempted to get access to the repository that was provided for our team, but encountered ssh problems. Contributed to class assignments and group meetings.

Christopher Williams:

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Researched measuring AC voltage with Arduino and made block diagram of a proposed circuit. Circuit used voltage divider, diode bridge, and waveform rectifier to convert voltage to DC. It was decided at the meeting that this design would not work for two reasons. The first is that a voltage divider would produce too much heat for practical purposes (or require massive resistors). The second is that there would be no ground wire, so the design would need to be modified to accommodate the relative nature of a three phase system. Digitizing the waveform now seems to be more practical. Also added to design and introduction sections of project report.