Lightning Talk: Engineering Standards and Requirements

Group 9
Chye Stecher, Josh Vrenick, Keegan Kraft , Matthew Dobrzynski, Taylor Semple, Anthony Ruffalo

What is our Project?

Our project is to make a fault detection system, this system will...

- Need to be able to detect different types of errors(faults) in an electrical transmission system
- Need to detect where the error is along the transmission line
- Our end product needs to work faster than current fault detectors

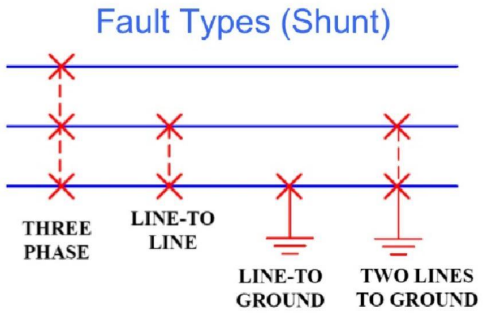
Requirements

Quantitative:

- 30 ms response time for detecting fault
- Where on a transmission line/network a fault is occurring
- What type of fault is occurring on the line (e.g. Line-to-line, line to ground, etc.)
- Response to fault in the transmission line by opening or closing a circuit breaker.

Qualitative:

- We are not to use impedance calculations and are instead going to analyse the waveforms through the use of a neural network.



Engineering Standards

- Instrumentation and Measurement
- National Electrical Safety Code (NESC)
- FERC/NERC Compliant
- Power and Energy
- Power Electronics
- Smart Grid
- Software and Systems Engineering

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

IEEE

Intended Users

- Benefits the electrical company money since it detects the fault faster and trips a breaker so they aren't pushing power into the ground and will not damage any power electronics
- Benefits consumers so that they receive the power they are expecting
- Land owners and environmental activists will benefit since the system will set a breaker to turn the line off faster so their land doesn't catch fire and harm the environment.

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