

GOOGLE EARTH INTEGRATION WITH POWER LINE DISTRIBUTION MAP TO DETERMINE FAULT LOCATION USING IMPEDANCE BASED METHOD

Student's name : Luvia Friska Narulita

Student's ID : 2211 206 006

Supervisor I : Prof. Ir. Mauridhi Hery P, M.Eng, Ph.D

Supervisor II : Dr. Ardyono Priyadi, S.T, M.Eng

ABSTRACT

Google Earth is a popular 3D mapping tool among internet users. With the ability of Google Earth to view the Earth map in 3D, many users integrate Google Earth with their own information system. For example, its usages are in mining surface, electricity plant or also for exploring the air above the earth.

Distribution line often experience faults caused by storms, lightning, insulation breakdown or short circuits. It is difficult to pinpoint the exact location of the faults. The time needed to locate the fault affects the time to repair the fault and returning the line back. One of the methods to locate faults is impedance based method which requires the amount of current and voltage of the network. This method has been used as the method to locate faults in power distribution network and transmission network as well. Impedance based method will result the fault distance in per unit system and then converted into kilometers. But, the distance information in kilometers brings unclear information for the technician to go to certain location of fault.

The result from impedance based fault locator is then converted into kilometers and will be integrated with Google Earth as the viewer of the fault location. By using Google Earth, the visualization of the fault location is easier to be understood by technician because the user will know the view of the location in which the fault has happened. This thesis is focused on integrating the map of power distribution network with Google Earth to determine the location of fault.

From the experiments done during this research, we had got 0.3% error for three phase fault, 1.85% error for line to line fault, 1.73% error for line to line fault and 0.53% error for single line to ground fault.

Keywords: Google Earth, Distribution Line, Fault Location