

Faculty of Engineering

Summer Research Program 2023-2024

Project Title: Smart Fault Location Technology for Power Transmission Lines

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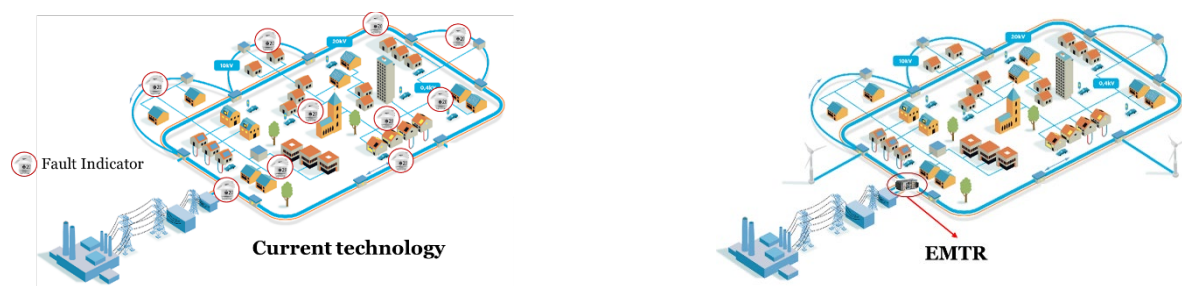
Objective

The aim of this industry-supported project is to develop a new fault location technique for power transmission lines. The project will try to tackle one of the long-lasting challenges in power networks, with significant benefits to distribution network service providers and communities.

Project Details

Fault location is an important processes required by power system operators. Transmission and distribution networks in power systems are always prone to short-circuit faults due to natural events such as falling trees or wind. Then, part of the network might experience a power outage that can last from a couple of minutes to several hours, depending on the fault location and restoration duration. Therefore, fault location process has a large influence on the security and quality of the power supply. The typical fault location practice is to use devices called Fault Indicators (FIs), installed at numerous points along power lines to indicate the fault path. Afterwards, the maintenance crew carries out visual inspection of the line in the indicated region to identify the exact fault location. Yet, there are several drawbacks associated with the use of these FIs such as need for large number of FIs to be installed and relatively long (90 minutes in average) fault locating process.

Recently, an award-winning method based on the Electromagnetic Time Reversal (EMTR) theory has been proposed and shown has been successfully trialed in Europe and Asia. The project aims to further develop this method and make it applicable to Australian power networks.



Prerequisites

N/A

Additional Information

Potential applicants are required to attend an interview.