

DISTRIBUTION GRID FAULT DIAGNOSIS

UNDER LOAD AND RENEWABLE ENERGY UNCERTAINTIES



INVENTION

This technology is a versatile intelligent fault diagnosis scheme for distribution grid considering the uncertainties associated with renewable energy resources. It models the uncertainties employing different probability density function. Then, it extracts useful features from the recorded current signals employing advanced signal processing technique and fetches them to train and test machine learning tools. The developed scheme is independent of fault resistance and pre-fault loading condition.

MARKET SIZE AND GROWTH

Global Smart Grid Market is valued approximately USD 28.77 billion in 2019 and is anticipated to grow with a healthy growth rate of more than 21% over the forecast period 2019-2026. The smart grid provides technologies that improve fault detection and enables self-healing of the network automatically after the power disturbances.

APPLICATIONS

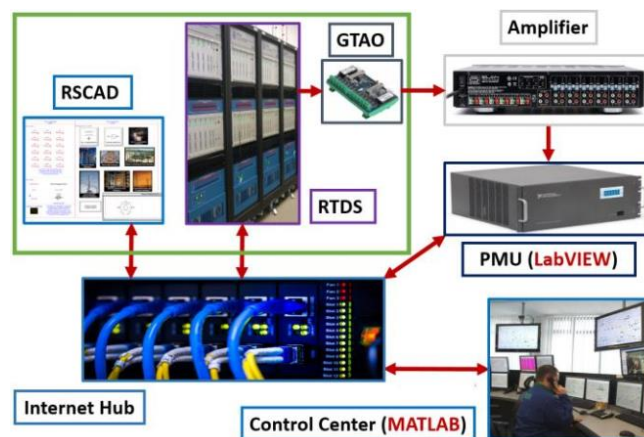
Power distribution companies can easily adopt this fault diagnosis scheme to expedite their restoration process after being subjected to any kind of faults thereby reducing their outage duration and revenue loss.

ADVANTAGES

- This scheme models uncertainties associated with the renewable energy generation and load demand employing appropriate probability density functions.
- It is independent of fault resistance and inception angle, measurement noise, and pre-fault loading condition.
- It detects, classifies, and locates faults with almost a hundred percent accuracy.

PROJECT STATUS

The developed scheme is tested in simulation and by building a laboratory prototype combining RSCAD software, RTDS machine, physical PMU, LabVIEW and MATLAB platforms.



LOOKING FOR DEVELOPMENT PARTNER

KFUPM is interested in development of simultaneous faults diagnosis scheme for the distribution grids with industry through market feedback or licensing the technology to a company to commercialize it and/or partner with a company.

PATENT PROTECTION

A US patent application [16/445972](#) covers the intelligent fault diagnostic scheme. The IP is owned by King Fahd University of Petroleum & Minerals (KFUPM).

ABOUT KFUPM

KFUPM was established in year 1963 and located in Dhahran city of Saudi Arabia. KFUPM currently ranks at 163 in QS World University Rankings 2021. KFUPM's Innovation & Technology Transfer office strives for taking innovation from lab to marketplace.

For further information please contact
IP-License@kfupm.edu.sa