Batch :7

Vivek T S

Rohit S NaiR

Rohit M Menon

Amal Joshy

Guided by: M/s Gomathy S

Abstract:

In the present scenario in substations Reactive protection is employed. This is very costly and is potentially very risky for the operators nearby. Other than this the service provider suffers a huge loss in revenue generated & there is no practical time available to undergo the repair. The current robots deployed in substations uses closed source hardware and software which affects its flexibility of implementation in local scenarios.

Our robot/rover is designed to overcome these limitations using opensource hardware and software, thereby improving safety standards. It is possible to remotely operate the robot using IOT interface before the repair team/wing arrives at the site and asses the situation without a direct human presence at the site. The robot/rover is able to perform autonomous movements/navigation by means of running SLAM algorithm and/or A\* algorithm on ROS (preferably running on a Linux distro). The data collection at site is done by thermal imaging to find anomalies invisible to naked eyes (Hotspots after faults, abnormal machine working situation), normal camera to conduct visual inspection and read gauges (preferably using OPENCV library or TF API from google). Compared to traditional substation robots our robot/rover can feed audio from site to control server/operator for acoustic inspection. Other than this the rover can also take count of lightning by measuring the vhf burst count and calculate distance from lightning by combining image and sound data.