

## Varactor based Electric Field Sensor for Lightning Early Warning System and Response Study.

\*Sebin Sabu<sup>1</sup>, Rizwin Muhammed<sup>1</sup>, Nora Elizabeth Joby<sup>2</sup>, Premlet B<sup>1</sup>

1. TKM College of Engineering, Kollam, 2. National Institute of Technology, Calicut

Electric field mills are used popularly for atmospheric electric field measurements. Atmospheric Electric Field variation is the primary signature for Lightning Early Warning systems. There is a characteristic change in the atmospheric electric field before lightning during a thundercloud formation. A voltage controlled variable capacitance is being proposed as a method for non-contacting measurement of electric fields. A varactor based mini electric field measurement system is developed, to detect any change in the atmospheric electric field and to issue lightning early warning system.

Since this is a low-cost device, this can be used for developing countries which are facing adversities. A network of these devices can help in forming a spatial map of electric field variations over a region, and this can be used for more improved atmospheric electricity studies in developing countries. An analysis on the response of the device against thunderstorm causing electric field simulations were done and analysed.

Keywords: Lightning, Sensor