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## Contact-Reflectional Telemetry Data for Distribution Grid Quality Assurance/Quality Control in Lateral Sensors

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**Keywords:** lateral sensor, electrical grid, weather monitoring system, 3D printed technology, geoscience instrument, network, sensor.

**Abstract:**
Recent advancements of electrical grid against damage to natural floods have become a major concern and researchers in the past few years. Natural disasters (e.g., lightning strikes, floods, storms, etc.) have been the major contributing factors to power grid infrastructure. Many natural forces can be forecast or at least anticipated in advance. Weather forecasting is about quantifying and anticipating the impact of weather is difficult task. Lack of weather data is the main issue. Current weather monitoring systems based on the latest technology proposed, Lateral sensors for the electrical grid, by way of hyper-locale weather monitoring system. Lateral sensors measure data such as temperature, barometric pressure, humidity, precipitation, solar radiation, and wind. These lateral sensor parameters can provide data for weather forecasting, and it can provide wireless communications interference impact power-lines, low-downed lines, and other weather-related issues. Contact-reflectional data is efficiently transmitted to the utility company and the utility company can provide contact advisory for the grid outage relevant cases. Moreover, this weather monitoring utilizes 3D-printed technology for the sensor housing and the sensor housing is made of PLA and is based upon a Generative Adversarial Network (GAN). The results of the study showed that implementation of lateral sensors based upon 3D-printed technology and GAN can be a cost-effective monitoring system. It can identify patterns within the data and 3D-printed sensors can detect more indicators that can cause power outages.

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