

## **ABSTRACT**

The prevalent technological paradigm employed is the Internet of Things (IoT), which facilitates the interconnection of physical devices with the internet, enabling streamlined data exchange. A notable application of IoT lies in optimizing the utilization of electric fans, which often exhibit inefficiencies leading to electricity wastage.

The development of an IoT-based Automatic Fan Project endeavors to enhance the efficacy of fan operation. This initiative leverages sensor technology to monitor ambient room conditions, including temperature and humidity, in real-time. Upon reaching predefined thresholds and detecting the presence of occupants within a space, the fan autonomously activates. Integral to this system are PIR sensors, DHT 11 modules, and ultrasonic sensors, which collectively enable the measurement of object motion and environmental parameters, thereby facilitating automated fan control. Additionally, the creation of an Android application affords remote fan management.

Employing the rigorous waterfall methodology, this final project has been meticulously crafted to align with its predefined objectives. Through the integration of Android and IoT technologies, the system adeptly regulates fan operation within a range of 1 meter and activates when ambient temperatures exceed 27-29 degrees Celsius. Rigorous testing substantiates the system's adherence to the project's stipulated aims and functionalities.

**Keywords:** IoT (Internet of Things), Android, PIR, DHT 11, Waterfall, Electric Fan