

ABSTRACT

Lightning is a natural phenomenon that occurs due to the release of electrical energy between clouds and the Earth's surface or between clouds themselves. While lightning is a beautiful natural display, it also carries significant risks, especially for electronic equipment and electrical systems. The immense electrical current from lightning can damage sensitive components and even cause fires. Therefore, an early lightning detection system is crucial to warn users before lightning reaches the affected area, allowing them to take preventive measures.

This project aims to develop an early lightning detection system using the AS3935 Franklin Lightning sensor, a microcontroller, an LCD for information display, a buzzer for audio alerts, and a smartphone application for remote monitoring. The AS3935 sensor detects lightning by measuring the frequency and intensity of the electromagnetic waves emitted by lightning. The microcontroller processes the signals received from the sensor to calculate the distance and potential lightning status, providing accurate, real-time information about the lightning hazard occurring in the surrounding area.

The processed data from the AS3935 sensor will be displayed on the LCD, offering clear visual information about the lightning status to the user. Additionally, the system includes a buzzer that emits an audio alert when potential lightning is detected, increasing user awareness. This information can also be transmitted to a smartphone, allowing users to monitor lightning conditions remotely. With this early lightning detection system, the risk of damage to electronic equipment can be minimized, and user awareness of lightning hazards can be enhanced.

Keywords: *Lightning Sensor, Detection, AS3935 Franklin Lightning, IoT Monitoring.*