**ABSTRACT**

**The Design and Implementation of a Wind Speed-Based Radar Antenna Safety System Prototype focuses on developing a safety mechanism to protect radar antennas from the damaging effects of high winds. Radar antennas, particularly large ones, are vulnerable to structural damage and performance degradation when exposed to extreme wind conditions. This prototype integrates wind speed sensors, such as anemometers, with an automated control system that monitors real-time wind data. Once the wind speed exceeds a predefined threshold, the system activates safety measures, such as retracting or repositioning the antenna to reduce wind load and prevent damage. The safety system aims to improve the durability and functionality of radar equipment, particularly in environments with fluctuating weather conditions. The prototype also offers potential for integration with existing radar systems, providing an affordable, efficient solution to mitigate wind-related risks. This work contributes to enhancing the reliability and longevity of radar antenna infrastructure in adverse weather conditions.**

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