

## A Feature Extraction of Photovoltaic Solar Panel monitoring system based on Internet of Things (IoT)

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### Abstract

**INTRODUCTION:** The Internet of Things (IoT) is a modern technology that improves user experience and gives items more intelligence. A large number of applications have already embraced the IoT. Our lives were made significantly easier and more accessible by the development of the IoT. In this research a photovoltaic solar panel system has been monitored using IoT.

**OBJECTIVES:** The feature extraction of a photovoltaic solar panel monitoring system based on the IoT working process is provided in this work. The implementation of maximum power point tracking (MPPT) algorithm also covered, along with a brief description of the pre-processing method, datasets and the PV system features are extracted.

**METHODS:** The model develops a thorough grasp to increase the voltage and current efficiency, a maximum power point tracking technique (MPPT) is implemented in this research study.

**RESULTS:** A safer solar panel monitoring system displays the result in LCD display screen it shows various readings, including the IP address, voltage and current rating, light intensity, temperature, and fault occur on the system receive warning message.

**CONCLUSION:** The proposed solar panel monitoring system demonstrates high level voltage and current accuracy when compared to the existing method.

**Keywords:** Internet of Things, Liquid Crystal Display, Photovoltaic solar panel, Maximum Power Point Tracking

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### 1. Introduction

"IoT" technology has the potential to significantly improve the management, monitoring, and upkeep of solar photovoltaic power facilities. The cost of renewable energy technology is falling due to technological breakthroughs on a global scale. This promotes the development of substantial Solar photovoltaic installations. The majority of solar PV systems are placed in remote locations, making remote monitoring hard. Improved strategies for remotely automated Plant monitoring using web-based interfaces are required. This article explains how to remotely assess the operation of a solar photovoltaic system utilizing the latest IoT technology.

This will make real-time monitoring, problem detection, facility history analysis, and preventative maintenance much easier. Solar energy is among the most alluring renewable energy sources for electrification. PV systems must be installed in order to transform solar energy's light energy into usable direct power. Anywhere there is enough energy potential, PV systems can be placed.

The biggest problem with PV systems is determining their performance because it changes based on several aspects and the operation of system components. In order to evaluate its performance, it needs a real-time surveillance system. This study provides an overview of IoT applications for real-time surveillance and management of PV system performance [1]. For maximum force yield, the sun-based force plants should be examined. In addition to checking for broken sunlight-









