IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.67
Volume 5, Issue 7, March 2025

Solar Operated Smart Valet Parking System with Cloud Monitoring

Miss. Amale Ashlesha Rajendra[1], Mr. Dagale Vikrant Vishnu[2], Miss. Datrange Sakshi Sandip[3], Mr. Yewale Shubham Babasaheb[4], Prof. J. N. Pote[5]
BE, E & TC Engineering[1-5]
AVCOE, Sangamner, A. Nagar, Maharashtra, India
amleashlesha@gmail.com, dagalevikrant8@gmail.com, datrangesakshi1@gmail.com,
shubham192426@gmail.com, jayarani.pote@avcoe.org

Abstract: *This project focuses on designing an automated parking system using a robotic module to streamline vehicle parking. The system consists of multiple parking slots, each categorized as either reserved or available. Instead of manually searching for a vacant space, drivers can park their vehicles at a designated entrance slot, after which the robotic module autonomously moves the vehicle to an available parking space. Real-time parking slot availability is communicated to the driver, ensuring an efficient and time-saving experience.*

A key feature of this system is its integration with renewable energy. By eliminating human intervention, the system improves parking efficiency, reduces traffic congestion, enhances safety, and minimizes fuel consumption.

The Solar Operated Smart Valet Parking System leverages advanced technologies, including IoT-based sensors, automated valet parking, and cloud-based monitoring. IoT sensors detect available spaces and assist in guiding vehicles, while cloud connectivity allows drivers to track their vehicles in real-time and receive parking status updates. Additionally, the cloud-based infrastructure collects and analyzes parking data, enabling centralized monitoring, space optimization, and energy management.

By utilizing solar energy, the system ensures continuous operation even during power outages while significantly reducing environmental impact. This innovative approach aims to address urban parking challenges by providing a sustainable, automated, and user-friendly solution that enhances convenience, safety, and energy efficiency.

Keywords: Automated Parking System, IoT-based Sensors, Solar Energy, Cloud-based Monitoring