

A Project Presentation On Quickpark



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Outline of Presentation

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Introduction

- **Surveillance** uses IoTs, ML, CV and DBs.
- Internet Of Things, adds **data & sensing**.
- Machine Learning, adds **recognition**.
- Computer Vision, adds **detection**.
- Databases, add **memory**.
- IoTs use “**The Cloud**”.
- It has **conveniences**.

Problem Statements

- Centralization can compromise **confidentiality**,
- Centralization can compromise **reliability**,
- Centralization is **overall costlier**.
- De-centralized options are **low**,
- De-centralized options can be **difficult**,
- De-centralized options **may not be cheap**.
- De-centralized options are **not highly popular**.

Objectives

- Develop a **production-ready, bare-bones** system.
- Develop an **easy-to-use** interface.
- Make system **easy to maintain**.
- Make system **inexpensive**.
- Scope for conveniences.
- Study student projects.

Literature Review

- Shine: Accessible Parking, arXiv.
- IoT based smart parking system, Xplore.
- Integrating IoT-Sensing and Crowdsensing with Privacy, arXiv.
- Adaptive Control of IoT/M2M Devices in Smart Buildings using Heterogeneous Wireless Networks, arXiv.

Materials and Methods

- ESP32 platform, if IoT hardware is required.
- CV/ML: OpenCV, PyTorch, Ultralytics, Python.
- Express.js atop Node.js, server-side programs.
- Flask on Python for Node to make ML queries.
- HTML/CSS/JS for any web frontends.
- Android SDK if an app is required.
- Overall, mostly open-source.

Conclusions

- For professionals, hobbyists and students, tooling to build decentralized systems exists.
- It is possible to build decentralized solutions that are also reliable and convenient.
- Convenience in both building and using such solutions can be lifted up with efforts.

Future Scope

- Expansion into complete hardware solution.
- Enhancing users' privacy as per arXiv paper.
- Expansion into parking management.
- Expansion into payments automation.
- Expansion into parking finding apps.

Thank you.