

Attendance Verification System Using Wi-Fi Access Points

Team Name: Absent Catcher

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Introduction

The purpose of this project is to develop an attendance verification system to ensure the physical attendance. This project aims to make the system to confirm whether students are present in the vicinity of the classroom when they attempt to check in for attendance by leveraging the MAC addresses of Wi-Fi packets.

Implementation Plan

The system will be developed using Python and will consist of two main components: the client (student) application and the server. The client application will utilize the Scapy library in Python for packet capturing, while the server will implement an API using Flask to facilitate smooth communication between the client and server components. Additionally, a database will be created to store valid AP MAC addresses for classrooms.

STEP 1: When the client attempts to check in for the attendance, the client will capture Wi-Fi packets and send them with the student's identification (ID) to the server.

STEP 2: The server receives the packet data and extracts MAC address from the Wi-Fi packets.

STEP 3: The server compares the extracted MAC address with a pre-stored list of valid MAC addresses associated with the classroom's APs.

STEP 4: Based on comparison, the server will either approve or deny the attendance request.

Conclusion

The proposed attendance verification system addresses the limitations of current attendance methods by ensuring that students are physically present in the designated area. We believe this system will represent a significant step toward achieving accurate and efficient attendance processes in educational institutions.