

Automatic Digital Attendance Management System

Project Students

Pradeep KM – CSE, Year II

Ranjeev Ram Prasad – IT, Year II

Johann Sylvester J – ECE, Year II

Gavutham K – Mechanical, Year II

Project Guides

Dr. A. Beulah, AP, CSE Dept

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Outline of the Presentation

- Introduction
- Objective
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- Proposed System
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Introduction

- Traditional attendance systems are slow and can be faulty.
- **ADAMS** is a project that uses an app to enable a fast and proxy free way of marking attendance.
- Student's own phones and Bluetooth beacons combine to determine if the students are inside the classroom.
- Facial recognition is used to confirm student identity.
- Easy maintenance and transfer of the data due to its digitization.
- Data analytics can be performed on the data which will provide useful insights to the students
- Applications: colleges, offices, warehouses, etc.

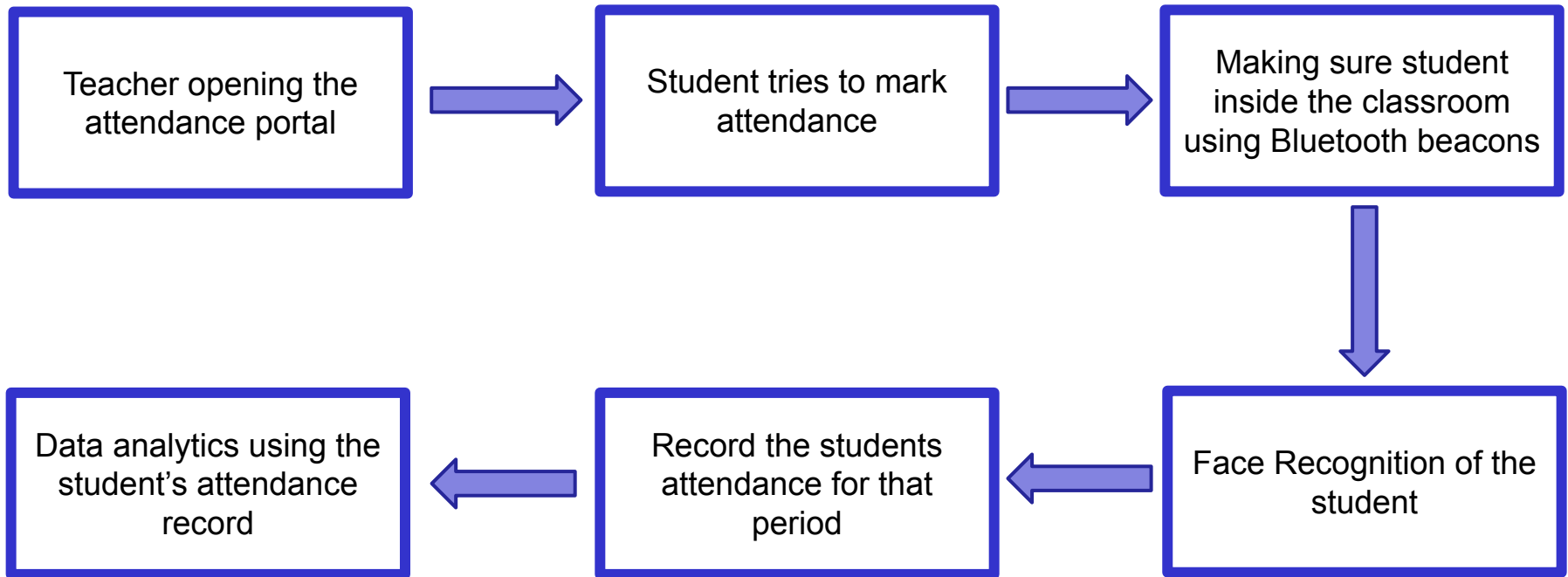
Objective

To design an app capable of ensuring the person is within the classroom, which uses facial recognition to provide a two step verification and to perform data analytics on the stored attendance data.

Problem Statement:

- To ensure the person is within the classroom using a smart phone and Bluetooth beacons.
- To ensure if the right person is logging in to the app using facial recognition.
- Create a fast and convenient way for the staff to digitize the attendance.
- Use data analytics to provide insights on attendance details.

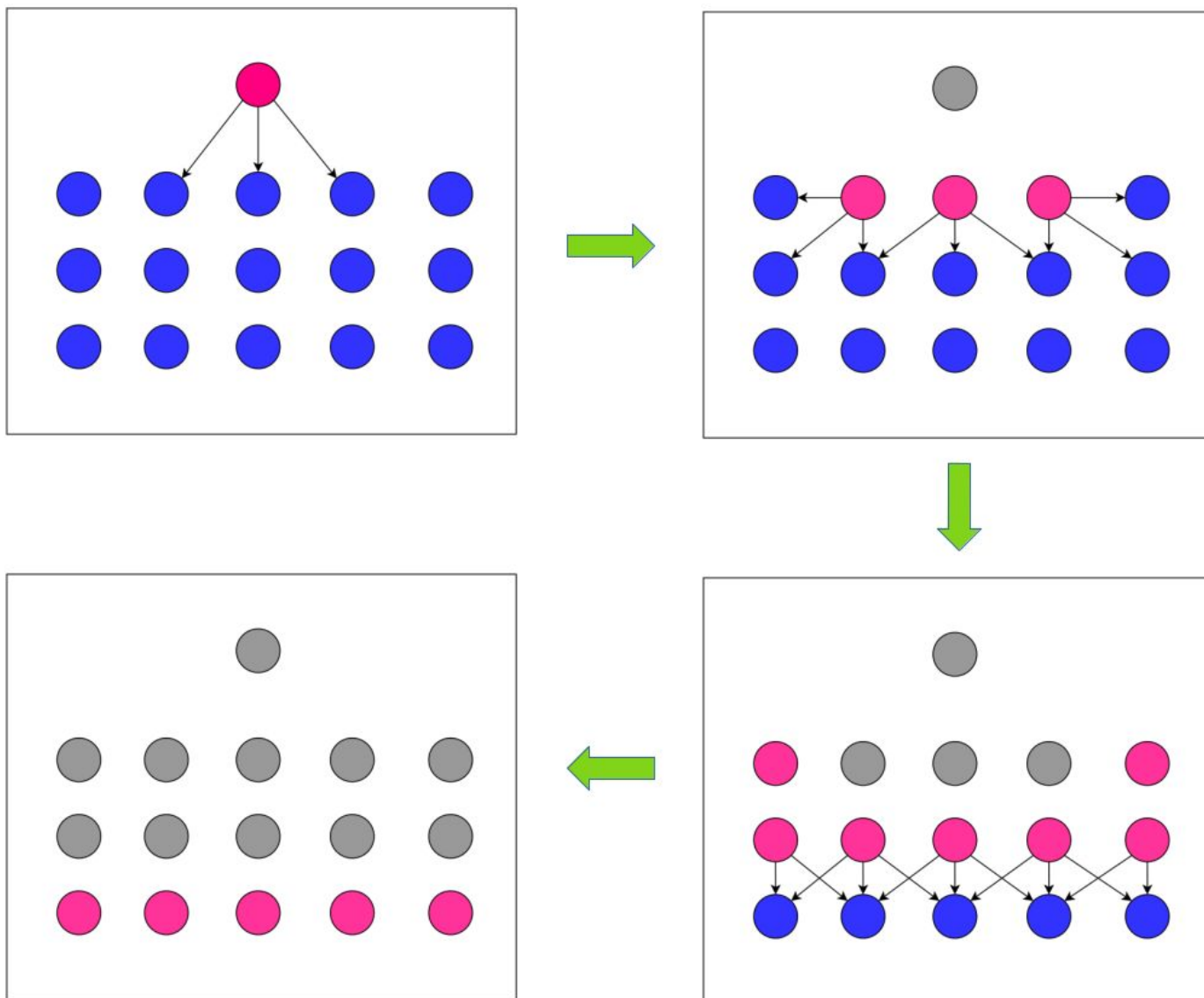
System Design



Peer-to-Peer Verification

- First step in student location verification.
- The teacher's phone scans the vicinity for student phones. The phones are matched to the corresponding student by the UUID that is being advertised by the student's phone.
- These first set of students are marked as 'PP Verified'. These student phones then scan their surroundings and the 5 students whose phones are closest to each of them are also marked as 'PP Verified'.
- This process cascades until all the students are either marked present or a timeout occurs.

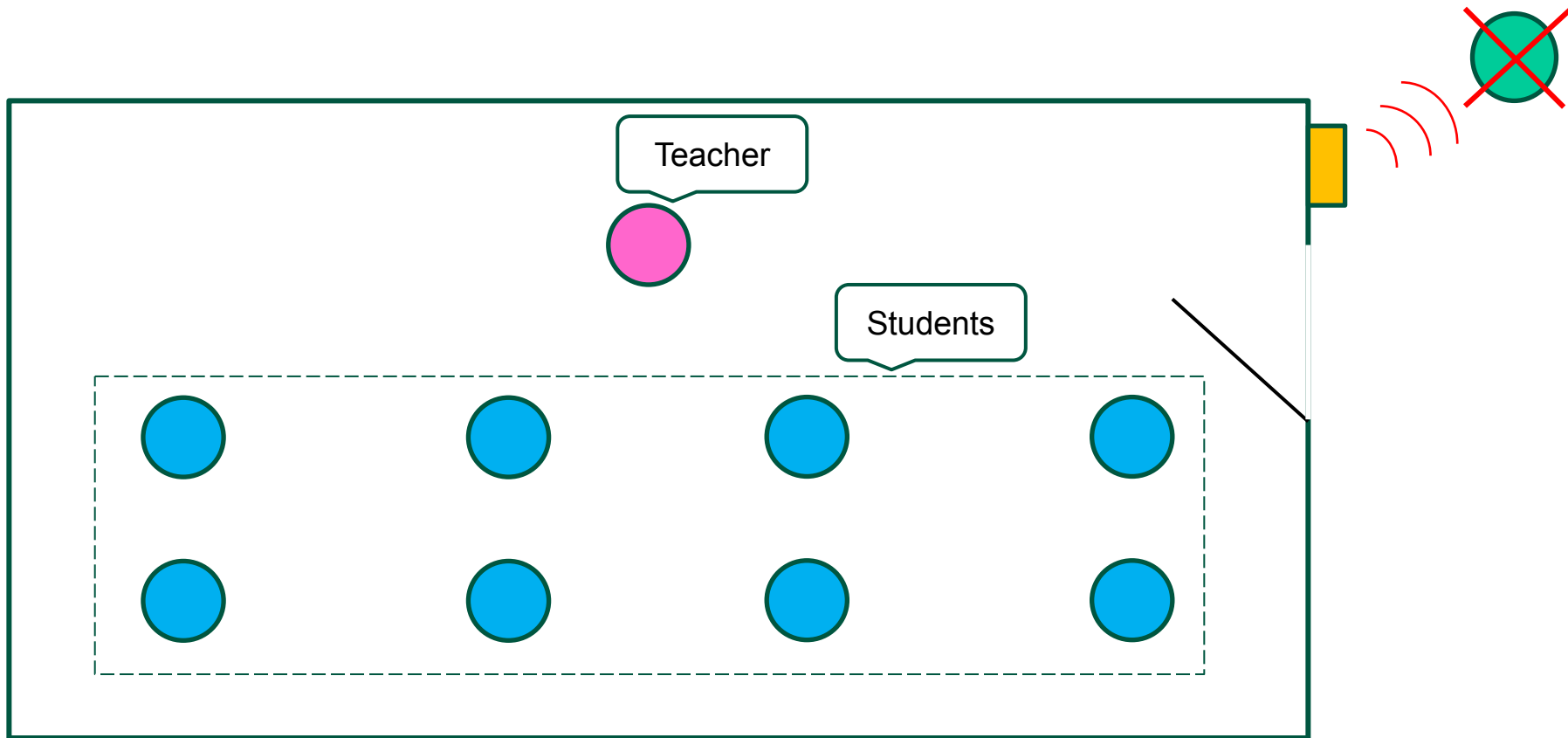
Peer-to-Peer Verification



Bluetooth Beacon Verification

- Once this stage is reached, Bluetooth beacons are used to negate the obvious false positives.
- The beacons are installed on the outer walls of classrooms.
- They will be able to detect the phones of students standing outside classrooms and immediately invalidate their attendance request.
- Even those students that have been 'PP Verified' will not get attendance if they fail at this stage as it indicates that the phone is actually not inside the classroom.

Bluetooth Beacon Verification



Proposed System

- Once a class is over, the teacher will open the attendance portal for that particular period for a certain amount of time.
- The Students who are assigned for that period will have a option to mark attendance when the teacher opens the portal.
- When the student tries to put attendance for a period, the two step verification takes place.
- First PP Verification happens to ensure that the students are grouped together inside the class.
- Firstly, using Bluetooth beacons the app make sure student is inside the classroom, if so then the students face recognition takes place to avoid proxy attendance.
- The app will be built using Flutter with Firebase and the backend will be built using Python Flask, MySQL and MongoDB.

THANK YOU