

Project Sheet: Smart Classroom

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1 Introduction

Project Objectives:

- Automate student attendance using facial recognition at the entry of classes.
- Have a database that facilitates the assessment of each student.
- Simplify the process of managing absences.

Project Motivation:

- Improve efficiency: By automating the attendance-taking process using facial recognition, the project aims to optimize classroom time management and reduce manual administrative tasks related to tracking absences.
- Enhance security: By using facial recognition technologies, the project controls access to classrooms and ensures that only authorized students can enter.
- Facilitate assessment: Creating a database containing students' facial features and personal information facilitates the individual assessment of each student.
- Promote digitization: The project aims to promote the digital transformation of learning environments by integrating advanced technologies.

2 Project Description

The *Smart Classroom* project aims to implement the following services:

- Attendance logging with a camera placed at the entrance of the room.
- Another camera to record the session and capture content for the board.
- Allow school members to access their personal space on a dedicated website for tracking absences based on their permissions. Students can view their profile to know their attendance status in all subjects. Teachers, on the other hand, have the right to delete or modify the attendance status of students.

3 Hardware and Software Requirements

3.1 Hardware Requirements:

- Raspberry Pi Camera Module
- LED lights
- Buzzer

3.2 Software Required to Implement the Project

- IDE: VsCode, PyCharm, Thonny
- Python Frameworks: Django, OpenCV
- Web tools: HTML, CSS, JavaScript
- OS: Raspbian

4 Conclusion

In conclusion, this project marks a first step toward a broad digitization process as part of the INPT Go Digital school program. It aims to digitize certain aspects and daily tasks of students and teachers, thereby facilitating the learning process within our school.

5 Bibliographical References

<https://www.raspberrypi.com/>
<https://towardsdatascience.com/>