student attendance management system

FRAMS, a student attendance management system that uses facial recognition to track student attendance

By: Ailly Shilunga gr.10-11

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# **Introduction**

## Description of business/organization

Jan Mohr Secondary School, a prestigious learning institution which aims to facilitate the provision of high-quality education to ensure that students achieve their full academic performance hence, their moto ***‘’Altyd my beste’’***, (Afrikaans for ‘’***Always my best’’***),is institute located in the capital city of Namibia, Windhoek (Windhoek West to be precise).Jan Mohr has a very unique number when it comes to staff, consisting of 3 Secretaries, 4 HOD’s, about 4-5 Sport teachers, 1 librarian and 8 cleaners. In total there are about 58 teachers. The school has 4 laboratories, 1 for Computer Science, 1 for Office practice, 1 Science laboratory and 1 for Biology. The school also has a few sport fields. This institute consists favor’s varies students from grades ranging from gr.8-12. Yearly, the school enrolls about

## Description of problem

Jan Mohr uses a paper based system to keep attendance records and

## Specific objects

Overall aim: To fully computerize the current student attendance management system

## **Efficient Attendance Management**

* The system should make recording attendance easy, and accurate (e.g., digital check-ins vs. paper). By leveraging preloaded student descriptors and one-second face scans, teachers bypass manual roll-calls and data entry. Loading profiles on dashboard initialization ensures zero lag during live recognition, while automatic status updates eliminate extra clicks. As a result, educators can reclaim upwards of two minutes per 30-student class—time they can reinvest into lesson delivery and student interaction.

## **Faster Attendance Marking**

The Facial Recognition Attendance Management System (FRAMS) transforms attendance-taking from a manual, time-consuming chore into an almost instantaneous process. By combining preloaded student rosters, one-second face scans, and automatic matching, FRAMS eliminates queues, verbal roll-calls, and endless data entry.

Key Speed-Boosting Features

* Preloaded Class Roster:  
  Student profiles and face descriptors are loaded on dashboard initialization, so recognition starts immediately without fetching data mid-session.
* Real-Time Face Detection  
  The system scans the webcam feed every second, instantly identifying known faces and marking them present.
* Automatic Status Update  
  once a match is found, attendance is recorded and saved to localStorage with no additional clicks or confirmations.
* Parallel Processing:  
  multiple faces can be detected and matched simultaneously, enabling large classes to be processed in bulk.
* Smart Fall-Back:
* Unrecognized faces are ignored without interrupting the flow, ensuring no delays even when new or unexpected faces appear.

**Ensuring Accuracy and Reliability**

Hand-written or verbally called roll-calls are prone to transcription errors, omissions, and miscommunication. FRAMS’s facial-recognition algorithms match biometric features with roster data to deliver near-perfect attendance records. Confidence thresholds and parallel processing of multiple faces further reduce false positives and ensure every recognized student is correctly logged. Built-in audit trails timestamp each recognition event, making retrospective validation straightforward and reliable.

## Description of existing solution

The current attendance system put to play is the manual roll-call, whereby all the teachers are given registers, each week the teachers are given their registers and take attendance for the entire week and then hand it in to their respected HOD at the end of the week.

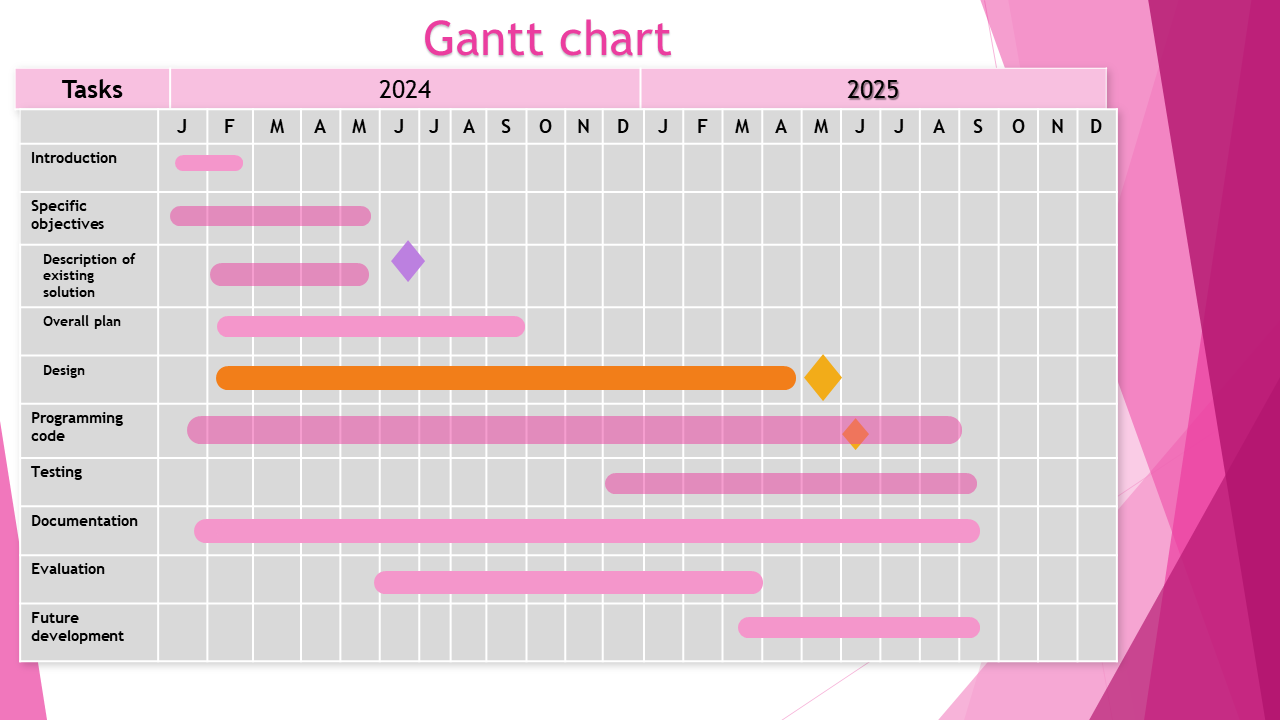
The HOD then,

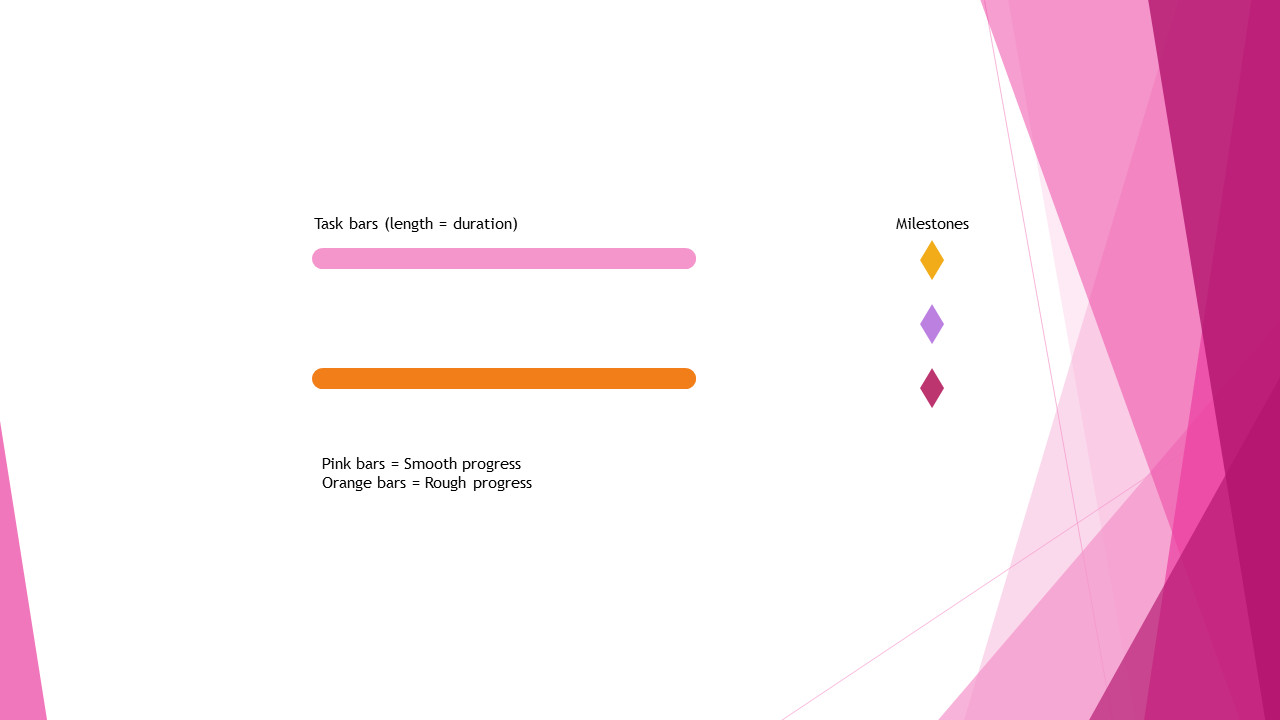
## Evaluation of existing solution

## Description of possible solution

# **Design**

## Action Plan

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## System Flowchart

The system begins with a login screen. If credentials are valid, the user accesses the dashboard. From there, they can initiate live attendance, where facial recognition scans students. If a face matches, attendance is marked; if not, it's logged as unknown. Teachers can also manually manage attendance. The session ends with logout, returning to the login screen.

## Method of solution

## Hardware requirements

## Software requirements

# Programing code

# **Testing**

## Test strategy

## Test Results

# **User Guide**

# **Evaluation and Development**

## Evaluation

# **Opportunities for system development**