

Attendance & Face Recognition System

Using Machine Learning and Deep Learning

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INTRODUCTION

About the Project

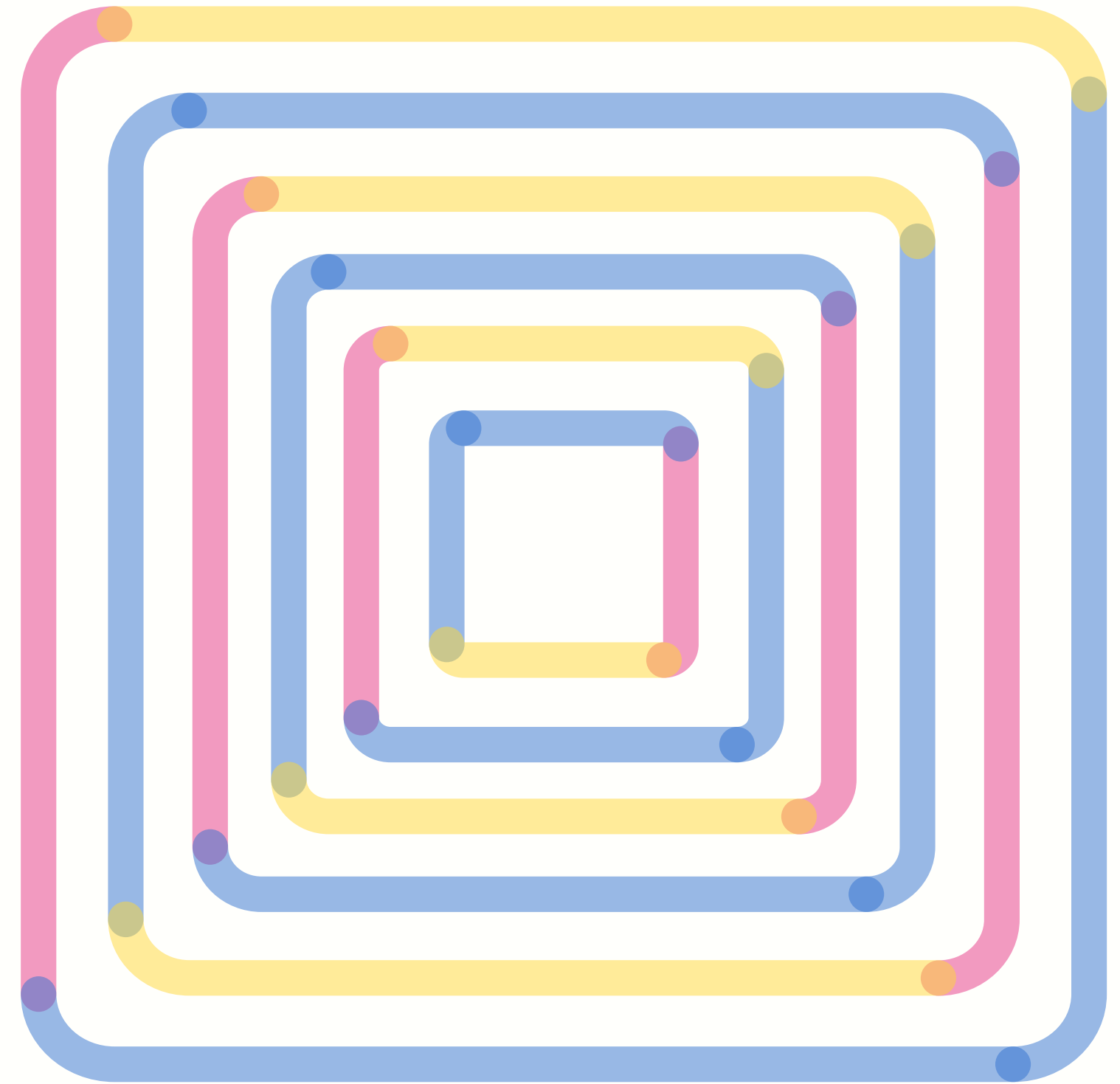
The idea is to use machine learning to create an attendance system using facial recognition.

- The system is developed for deploying an easy and a secure way of taking down attendance. The software first captures an image of all the authorized persons and stores the information into database. The system then stores the image by mapping it into a face coordinate structure.
- Next time whenever the registered person enters the premises the system recognizes the person and marks his attendance along with the time.



Aim

The aim of the project is to create a system capable of marking attendance and capturing other details of the subject such as time of entry, granting authorization and creating a log, all using facial recognition.





OBJECTIVES

Possible Applications & Advantages

- The software can be used for security purposes in organizations and in secured zones.
- The software stores the faces that are detected and automatically marks attendance.
- The system is convenient and secure for the users.
- It saves their time and efforts.
- Face recognition is one of the few biometric methods that possess the merits of both high accuracy and low intrusiveness.

Challenges

- The system don't recognize properly in poor light so may give false results.
- It can only detect face from a limited distance.
- Differently posing – there could be images of the same person with different face angles.
- Confusing between similar looking people
- It is diffucult to train the model and takes a considerable amount of time.

Steps in Recognition

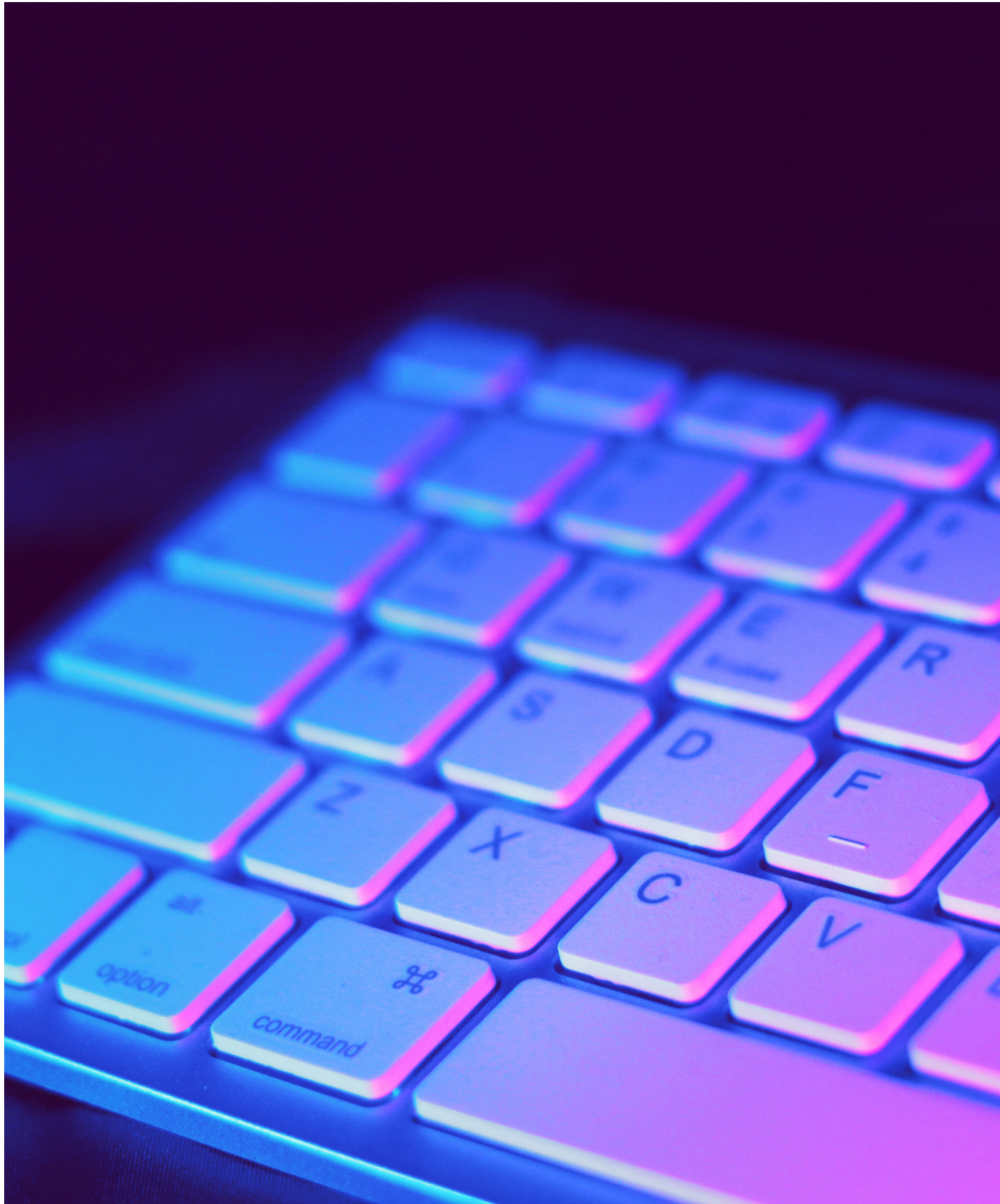
- A Face recognition algorithm can extract features from a face image namely positions of forehead, eyes, nose, mouth, chin, jaws. There are 68 specific points (called landmarks) that exist on every face.
- This information is fed to the feature vector that has already been pre-trained from previous test data.
- The next step is to match these encoding with the nearest possible image from a stored database.
- The captured frames will be matched against the existing database images and if the match is found then it'll store it in a CSV file which acts as an Attendance Register.



Major Modules

- Information Gathering / Planning
- Model Design
- Model Training / Database Connectivity
- Model Testing and Review
- Frontend & Deployment





Tools

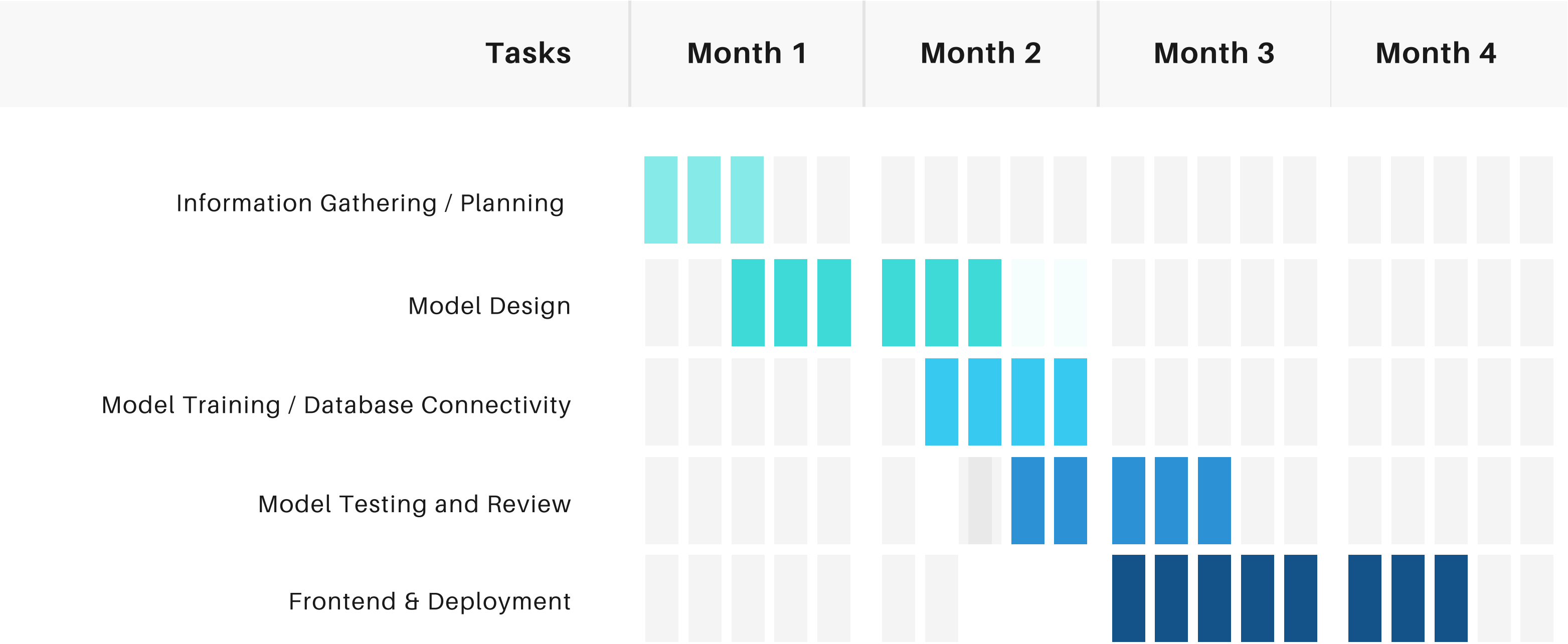
- Tensorflow
- OpenCV
- Google Colab
- Django/Flask
- Cascade Classifier
- Keras
- Pandas

Techniques

- Facial Recognition
- Convolutional Neural Network (CNN)
- Transfer Learning
- Computer Vision
- Classification Models

FACE RECOGNITION & ATTENDANCE SYSTEM

Final Year Project Gantt Chart



Thanks

