



Case Study

**Attendance Management System That
Uses Facial Recognition**

Case Study

We developed an attendance management system that uses facial recognition methods to detect faces of employees



Summary

We developed a facial recognition system for attendance management using advanced deep learning algorithms, computer vision techniques and OpenCV library. The system was designed to be user-friendly and easy to integrate with the organization's existing HR management system

Challenges

There are several limitations associated with biometric attendance management systems including privacy concerns, technical errors, and integration challenges. Besides, many enterprises refrained from the use of biometric systems for attendance management to avoid contact in the wake of COVID-19 pandemic. As a result, facial recognition systems gained popularity as they are faster, responsive and more accurate. The client sought our expertise to develop an AI-based attendance management system that used facial recognition technique to facilitate effective check-ins/check-outs.

Solution

Our team used the images of employees stored in the client's database and matched them with their database records. The aim was to develop a system that would automatically detect employees' faces, compare them with their records, and mark their attendance. If an employee was late or absent, the system would generate a notification, which would be sent to the HR department for follow-up.

Industry

IT Services

Users

Employees, HR Managers, HR Executives

Technologies

Python, MongoDB, jQuery, HTML5, CSS, Natural Language Processing, AWS rekognition, Tensorflow, OpenCV

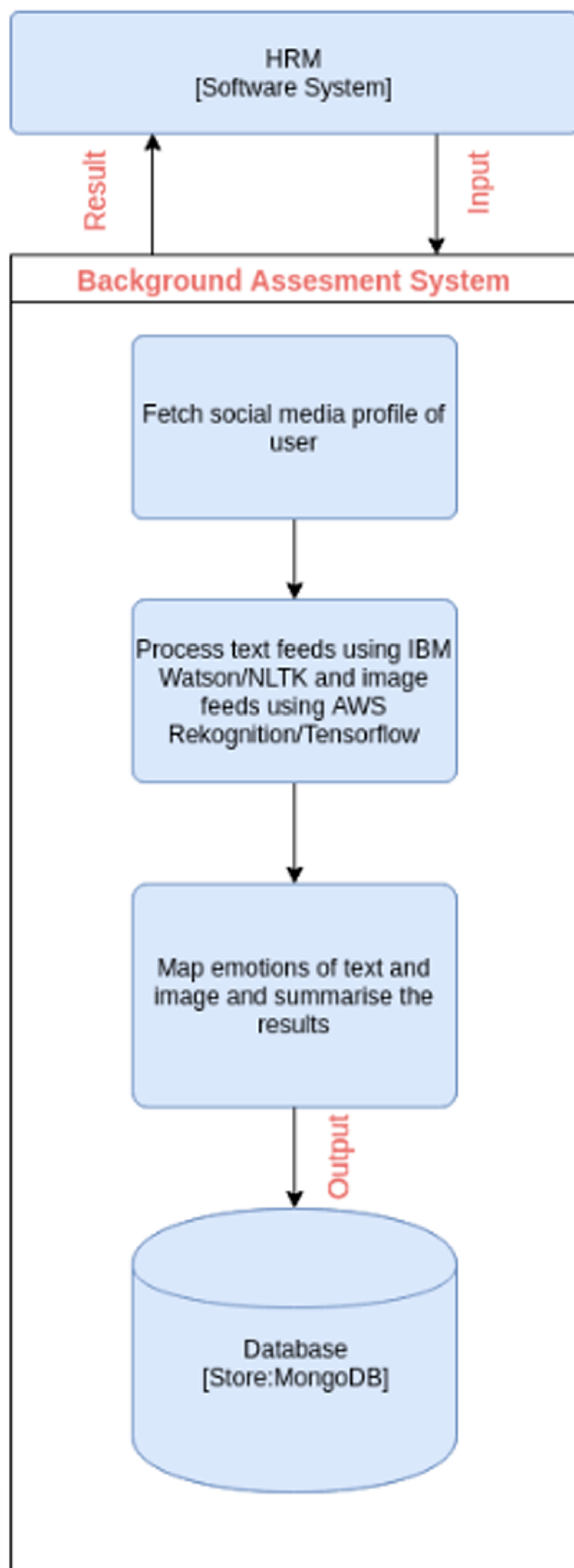
Team Size

8 Oodlites

Data Fields

Name
Age
Gender
Employee ID
Face ID
JobInvolvement JobLevel JobRole

Context Diagram



Steps to Build this System

- Data preparation using panda and numpy
- Database modeling and design(MySQL is enough because we will have structured data in CSV or will be coming from HRM module)
- Data validation
- Data normalisation if required
- Explore the data and find cor-relation with parameters in graphical view. This will help to find the attrition effect one vs other parameter
- Modeling and training the data using algorithms that best suits(Logistic Regression, Random Forest, and Support Vector Machine)
- Testing the performance using ROC graph
- Develop restful API to accept the input and provide response to HRM module

Results Delivered

The facial recognition system was implemented in the organization's offices, and the results were immediate and positive. The system reduced the time required to take attendance, as it eliminated the need for manual record-keeping. The accuracy of the attendance records was also improved, as the system eliminated the possibility of human error and ensured that the records were updated in real-time.

About Oodles ERP

Oodles ERP is a software services company that offers complete enterprise software development services with a focus on implementing next-gen technologies. With a proven track record in custom ERP development, we have successfully completed 50+ software projects related to CRM, HRM, inventory/warehouse, eCommerce, supply chain, and logistics. We are mainly focused on helping startups and small-to-medium enterprises to achieve digital transformation through cost-effective ERP software solutions.

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