Visual Track

**PROJECT SYNOPSIS**

**PROJECT II**

**PROJ-IT781**

**BACHELOR OF TECHNOLOGY**

**Information technology**

SUBMITTED BY

**IT\_PROJ\_2023\_<**Gr-Id**>**

**Group Members**

|  |  |  |
| --- | --- | --- |
| **Student Name** | **University Roll NO.** | **Registration No.** |
| Bishal Das | 11900220011 |  |
| Rahul Gorai | 11900220028 |  |
| Abinash Chhetri | 11900220026 |  |
| Shubhadip Paul | 11900220035 |  |



**Siliguri Institute of Technology**

**Salbari, PO: Sukna Darjeeling: - 734009**

Siliguri Institute of Technology

**SPECIFICATIONS FOR SYNOPSIS**

1. The synopsis shall be computer typed (English- British, Font -Times Roman/Cambria, Size-12 point) and printed on A4 size paper.
2. The Synopsis shall be typed on one side only with double space with a margin 3.5 cm on the left, 2.5 cm on the top, and 1.25 cm on the right and at bottom.
3. In the synopsis, the title page [Refer sample sheet] should be given first. This should be followed by index, notations/nomenclature.
4. The diagrams should be printed on a light/white background; Tabular matter should be clearly arranged. Decimal point may be indicated by full stop (.)The caption for Figure must be given at the BOTTOM of the Fig. and Caption for the Table must be given at the TOP of the Table.

Synopsis, preferably, should be of about 5-10 pages. The content should be as brief as is sufficient enough to explain the objective and implementation of the project. The write up must adhere to the guidelines and should include the following (necessarily in order as given below).

1. **Name / Title of the Project**
2. **Project category**
3. **Statement about the Problem [Introduction] (Max 2 pages)**
4. **Objective and Scope of the project (Max 1 page)**
5. **Methodology Adopted (As per your requirement)**
6. **Tools/Platforms to be used.**
7. **Conclusion**
8. **Bibliography/Referencing**

**Topic of the Project:**

The topic itself gives a glance into the project to be taken up; candidate is advised to be careful on naming the project. This being the overall impression on the future work.

**Objective and Scope:**

This should give a clear picture of the project. Objective should be clearly specified. What the project ends up to and in what way this is going to help the end user has been mentioned.

**Process Description:**

The process of the whole software system proposed, to be developed, should be mentioned in brief. This may be supported by DFD's / Flowcharts/any to explain the flow of the information.

**Resources and Limitations:**

The requirement of the resources for designing and developing the proposed system must be given. The resources might be in form of the hardware / software or the data from the industry.

**Conclusion:**

The write-up must end with the concluding remarks-briefly describing innovations in the approach for implementing the Project, main achievements and also any other important feature that makes the system stands out from the rest.

**Bibliography/Referencing:**

The project report must be considered as a very standard report, and therefore, it should follow all rules, guidelines and protocols of gathering and presenting information, and implementing that and drawing conclusions out of it.

All these activities require appropriate and authentic sources of information and that particular information must be **referenced or cited** according to the copyrights and other guidelines. Therefore, to make the report original, it should be free from **plagiarism** and must follow standard citations and guidelines of citations to represent the reference names.

The appendices of a project report should be written in Times New Roman format of font size 10, and it should contain the information which is appropriate and added to the main text like [Reference No].

**Reference:** All the references should be arranged alphabetically or serially as thecase may be for quoting in text.

**For Journal(s) and Book(s):**

P.S.Bradley, O.L.Mangasarian. "Feature selection via concave minimization and support vector machine." International Conference on Machine Learning (1998): 82-90.

Smith, MeCabe and. Unit Operations in Chemical Engg. 4th ed., TMH.

Visual Track

This project integrates advanced face recognition technology with Python, OpenCV, Tkinter GUI, and and SQL database to create a seamless student attendance system. Leveraging the power of facial recognition, the system ensures accurate identification, while the user-friendly Tkinter GUI enhances the overall experience. The integration with a MySQL database for data management capabilities makes this project a comprehensive solution for efficient and secure student attendance tracking in colleges and Universities.

Problem Statement

In response to the inconsistency plaguing traditional student attendance systems, this project aims to revolutionize attendance management through the creation of an Advanced Face Recognition Student Attendance System. Utilizing tech stacks like **Python**, **OpenCV, Tkinter GUI**, and **MySQL** Database, the system aims to automate the attendance tracking process, eliminating manual errors and curbing issues such as proxy attendance. The primary objective is to enhance accuracy and efficiency while promoting a technologically advanced and secure environment in educational institutions.

The project's problem statement encompasses several challenges. First and foremost, the facial recognition algorithm needs to be optimized to accommodate diverse facial features and ensure accurate identification in varying conditions. Real-time processing is crucial for swift and seamless attendance tracking, demanding efficient algorithmic design. Additionally, the integration with a **MySQL** database introduces challenges related to data management, requiring robust measures to maintain integrity and security.

Successfully addressing these challenges will result in a reliable and user-friendly solution, streamlining attendance management for both students and educators. By embracing advanced technologies, this project aims to transform the conventional methods of attendance tracking, fostering a more efficient and secure educational environment.

Objective and Scope of the Project

The objective of the Advanced Face Recognition Student Attendance System project is to modernize and streamline the process of attendance tracking in educational institutions. The primary goal is to leverage cutting-edge technologies, including **Python, OpenCV, Tkinter GUI, and MySQL Database**, to create an automated system that enhances accuracy, efficiency, and security.

The project aims to develop a robust facial recognition algorithm capable of accurately identifying students in diverse conditions, addressing the limitations of traditional attendance methods. By eliminating manual data entry, the system mitigates the risk of errors and tackles issues such as proxy attendance, ensuring the reliability of attendance records. The integration of a user-friendly Tkinter GUI enhances accessibility for both students and educators, making the system intuitive and easy to navigate.

The scope of the project encompasses the optimization of the facial recognition algorithm, real-time processing for swift attendance tracking, and secure integration with a **MySQL** database for efficient data management. The system's application extends to various educational institutions, from schools to universities, providing a versatile solution to revolutionize attendance management. Overall, the project aspires to set a new standard in attendance tracking, fostering a technologically advanced and secure environment for educational institutions.

Methodology Adopted

The methodology adopted for the Advanced Face Recognition Student Attendance System involves a systematic and step-by-step approach to ensure the successful development and implementation of the project.

Initially, a comprehensive study will be conducted to understand the existing challenges in traditional attendance systems and to identify the requirements and expectations of users. This phase involves gathering information about facial recognition algorithms, **OpenCV functionalities, Tkinter GUI design, and MySQL database integration**.

Following the study, the project will move into the design phase. This involves planning the architecture of the system, designing the user interface with Tkinter, and outlining the functionalities of the facial recognition algorithm. Careful consideration will be given to optimizing the algorithm for diverse facial features and ensuring real-time processing capabilities.

Once the design is in place, the development phase begins. Python programming language will be used to implement the facial recognition algorithm and integrate it with the **Tkinter GUI**. The system will also be connected to a MySQL database for efficient data management.

After development, extensive testing will be carried out to identify and rectify any bugs or issues. User feedback will be incorporated to refine the system further. Finally, the project will be deployed, making the Advanced Face Recognition Student Attendance System ready for use in educational institutions, offering an automated and secure solution for attendance tracking.

Platforms to be used

The project will utilize Python as the programming language, **OpenCV** for advanced facial recognition capabilities, Tkinter for developing **a user-friendly GUI**, and **MySQL** Database for efficient data management. These tools and platforms collectively form a robust technological stack, ensuring seamless integration and optimal performance in creating the Advanced Face Recognition Student Attendance System.

Conclusion

In conclusion, the Advanced Face Recognition Student Attendance System project presents a forward-thinking solution to the limitations of traditional attendance tracking. By leveraging Python, OpenCV, Tkinter, and MySQL, the system not only automates the process but also enhances accuracy and security. This project aligns with the ever-evolving technological landscape, providing educational institutions with a reliable and efficient tool for attendance management, ultimately contributing to a more streamlined and secure learning environment.

Bibliography

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