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| **BSc (Hons) Computing Course 2023/24**  **Level 6 Production Project** | | |
| **Name: Ayush Thapa** | **Student I.D.: 77297990** | |
| **Course:** BSc (Hons) Computing | **Supervisor’s Name:** | |
| **Final Project Individual Aim & Objectives** | | |
| **Title of my Project:** Magic Mirror – Reflect your Hair Style | | |
| **Aim of my Project:** To create a system that uses facial recognition to identify user’s face shape and recommends hairstyle using TensorFlow. | | |
| **Objectives of my Project:**   1. Compilation of diverse dataset of face portrait image. 2. Implement facial recognition to accurately identify user face shape 3. Integrate Database containing wide range of hairstyle suitable for different face shape 4. GUI to allow user to upload their image 5. Testing and Evaluation | | |
| **Specification of my Product:**  The specification for this project is categorized into functional and non-functional on the basis of MoSCoW method:  Functional Requirement:   |  |  | | --- | --- | | Recommend hairstyle if identified | M | | Identify user’s face shape | M | | Product has a GUI interface | S | | Database having diverse selection of hairstyle | S | | User to provide feedback on hairstyle | C | | Basic image editing feature | W | | User to visualize recommended hairstyle on their own image | W |   Non-Functional Requirement:   |  |  | | --- | --- | | Product is tested and validated | M | | Developed using free software products | M | | Product has time limit for identifying face shape | S | | Product is user friendly | C | | | |
| **Research:**  Hairstyle are extremely important to people as an enhancement to their personality and beauty and as such when finding a suitable hairstyle, the shape of the face must be considered and it can be helped by the effective face shape classification and constructing a hairstyle recommendation system (Sunhem & Pasupa, 2016).  This paper, shows outline for choosing hairstyle on the basis of face shape, the model can classify the face shape when user uploads an image, for the landmarks of image, libraries were utilized and classify the face shape (Weerasinghe & Vidanagama, 2020).  In study by Rahmat et al. (2018), probability Neural Network and Invariant Moments are used to find the face shape of men and the result of training 90 data and testing 30 data was, 80% accuracy to classify men face shape.  **Evaluation:**  For the evaluation of the product, it would be based on the fulfillment of the given objectives and product specification. Wide variety of data will be used in the product as input and the output hairstyle result recommended by the product as well the accuracy of face shape detection will determine the accuracy of the project. In case of research, the evaluation will be defined by the specified objectives. | | |
| **Project Planning & Methodology** | | |
| **Project Planning:**  Timeline:    Task Sheet:        Grant Chart:        **Methodology:**  Agile will be used as methodology as it provides iteration and flexibility which help in this project which evolves through continuous feedback and suggestions (Laoyan, 2022). Scrum will be used from agile method as this methodology in this project “Magic Mirror” will undergo iterative development dividing into multiple sprints.  Through the meeting with supervisor at least 2 per week, discussion of progress and further improvement as well as suggestion and feedback will take place every sprint. Grant chart and project timeline will help to give visual detail. This methodology will be able to bring efficient and adaptiveness which will help in completion of project. | | |
| **\Resources** | | |
| **The hardware and software I require to complete my Project successfully:**  Used hardware:  Acer Nito 5 Laptop  Used software:  Microsoft Word  MS Project  Microsoft PowerPoint  ChatGPT  Chrome (Web Browser)  VS Code (IDE)  GitHub (Version Control)  Python  Java  Google Meet  TensorFlow | | |
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| **Human Resource** | | |
| **I am working on my Project with the following people** | | |
| **Name:** | **Role:**  Module Leader  Supervisor | |
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| **Initial Bibliography** | | |
| W. Sunhem and K. Pasupa, "An approach to face shape classification for hairstyle recommendation," 2016 Eighth International Conference on Advanced Computational Intelligence (ICACI), Chiang Mai, Thailand, 2016, pp. 390-394, doi: 10.1109/ICACI.2016.7449857.  H. Weerasinghe and D. Vidanagama, "Machine Learning Approach for Hairstyle Recommendation," 2020 5th International Conference on Information Technology Research (ICITR), Moratuwa, Sri Lanka, 2020, pp. 1-4, doi: 10.1109/ICITR51448.2020.9310868.  Romi Fadillah Rahmat, Muhammad Dian Syahputra, Ulfi Andayani, and Tifani Zata Lini 2018. Probabilistic neural network and invariant moments for men face shape classification. IOP Conference Series: Materials Science and Engineering, 420(1), p.012095.  Laoyan, S., 2022. *What is Agile methodology? (A beginner’s guide).* [Online]  Available at: https://asana.com/resources/agile-methodology [Accessed 1 January 2023]. | | |