77297990_Ayush_Thapa_Project_Specificaiton

by Ayush Thapa

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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.

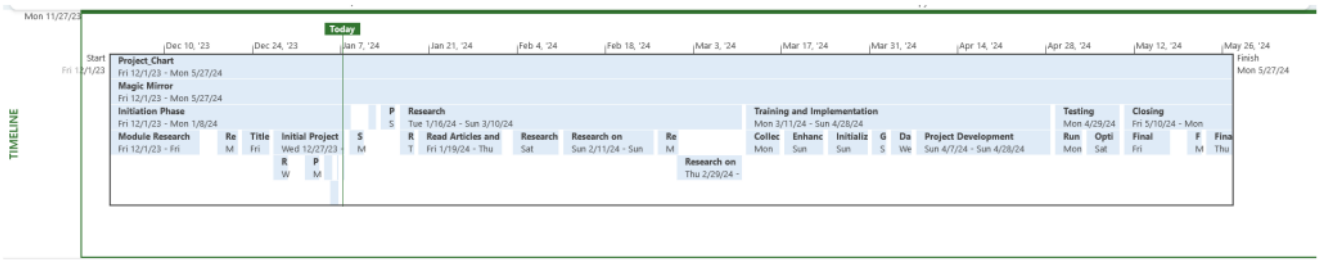
Evaluation:

For the evaluation of the product, it would be based on the fulfillment of the 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:

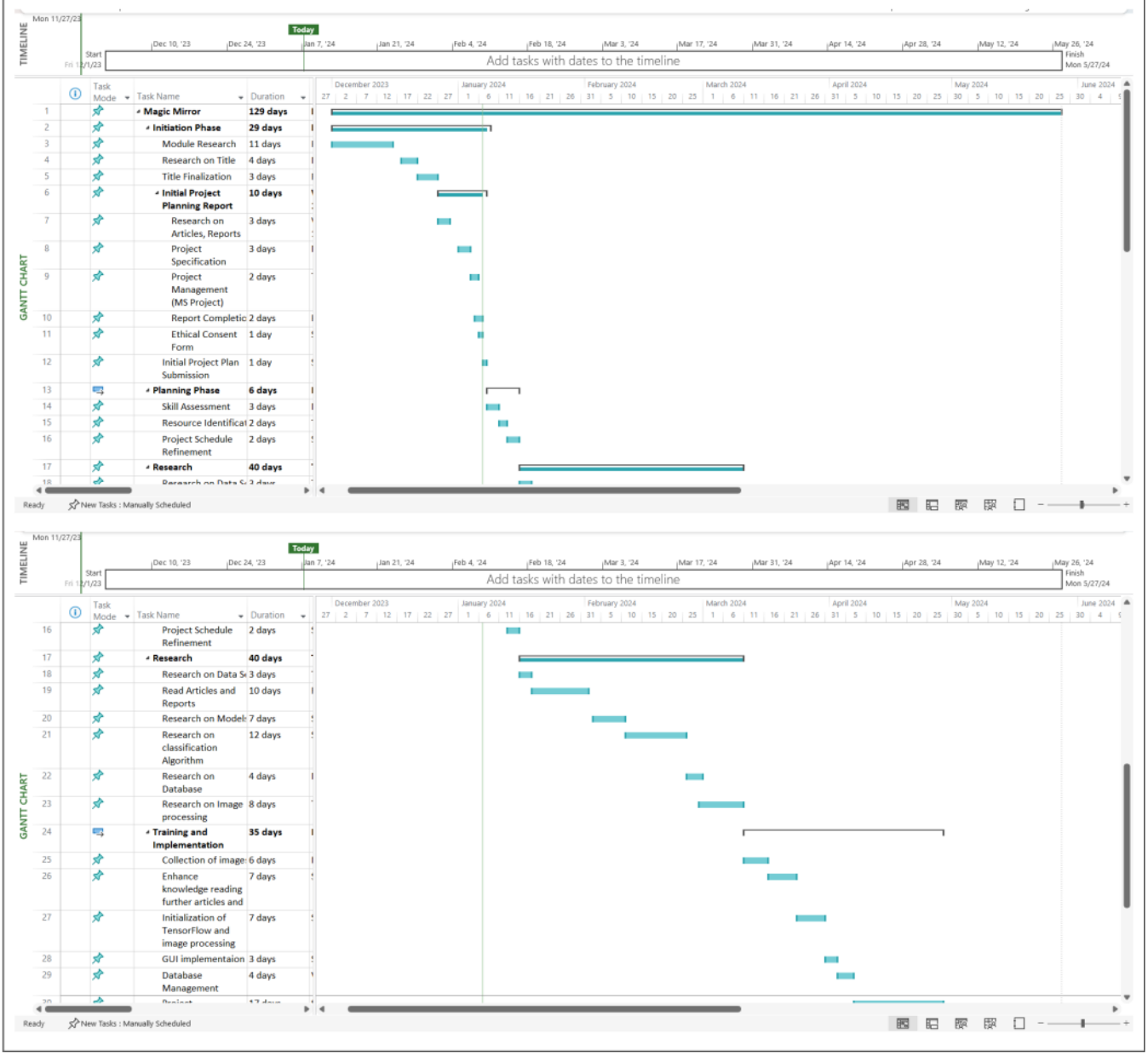
GANTT CHART

	Task Mode	Task Name	Duration	Start	Finish	Predecess
1		**Magic Mirror**	**129 days**	**Fri 12/1/23**	**Mon 5/27/24**	
2		**Initiation Phase**	**29 days**	**Fri 12/1/23**	**Mon 1/8/24**	
3		Module Research	11 days	Fri 12/1/23	Fri 12/15/23	
4		Research on Title	4 days	Mon 12/18/23	Thu 12/21/23	
5		Title Finalization	3 days	Fri 12/22/23	Tue 12/26/23	
6		**Initial Project Planning Report**	**10 days**	**Wed 12/27/23**	**Sun 1/7/24**	
7		Research on Articles, Reports	3 days	Wed 12/27/23	Fri 12/29/23	
8		Project Specification	3 days	Mon 1/1/24	Wed 1/3/24	
9		Project Management (MS Project)	2 days	Thu 1/4/24	Fri 1/5/24	
10		Report Completic	2 days	Fri 1/5/24	Sat 1/6/24	
11		Ethical Consent Form	1 day	Sat 1/6/24	Sat 1/6/24	
12		Initial Project Plan Submission	1 day	Sun 1/7/24	Sun 1/7/24	
13		**Planning Phase**	**6 days**	**Mon 1/8/24**	**Mon 1/15/24**	
14		Skill Assessment	3 days	Mon 1/8/24	Wed 1/10/24	
15		Resource Identificat	2 days	Thu 1/11/24	Fri 1/12/24	
16		Project Schedule Refinement	2 days	Sat 1/13/24	Mon 1/15/24	

GANTT CHART

	Task Mode	Task Name	Duration	Start	Finish	Predeces
17		**Research**	**40 days**	**Tue 1/16/24**	**Sun 3/10/24**	
18		Research on Data S	3 days	Tue 1/16/24	Thu 1/18/24	
19		Read Articles and Reports	10 days	Fri 1/19/24	Thu 2/1/24	
20		Research on Model	7 days	Sat 2/3/24	Sat 2/10/24	
21		Research on classification Algorithm	12 days	Sun 2/11/24	Sun 2/25/24	
22		Research on Database	4 days	Mon 2/26/24	Thu 2/29/24	
23		Research on Image processing	8 days	Thu 2/29/24	Sun 3/10/24	
24		**Training and Implementation**	**35 days**	**Mon 3/11/24**	**Sun 4/28/24**	
25		Collection of image	6 days	Mon 3/11/24	Sat 3/16/24	
26		Enhance knowledge reading further articles and	7 days	Sun 3/17/24	Sat 3/23/24	
27		Initialization of TensorFlow and image processing	7 days	Sun 3/24/24	Sat 3/30/24	
28		GUI implementaion	3 days	Sun 3/31/24	Tue 4/2/24	
29		Database Management	4 days	Wed 4/3/24	Sat 4/6/24	
30		Project Development	17 days	Sun 4/7/24	Sun 4/28/24	
31		**Testing**	**9 days**	**Mon 4/29/24**	**Thu 5/9/24**	
32		Runing application with different images	5 days	Mon 4/29/24	Fri 5/3/24	
33		Optimizing codes with comments	5 days	Sat 5/4/24	Thu 5/9/24	
34		**Closing**	**12 days**	**Fri 5/10/24**	**Mon 5/27/24**	
35		Final Report Finalization	6 days	Fri 5/10/24	Fri 5/17/24	
36		Final Report Submission	3 days	Mon 5/20/24	Wed 5/22/24	
37		Final Presentation	3 days	Thu 5/23/24	Mon 5/27/24	

Grant Chart:


TIMELINE
Today
Add tasks with dates to the timeline
GANTT CHART
Task Mode
Task Name
Duration
1 Magic Mirror 129 days
2 Initiation Phase 29 days
3 Module Research 11 days
4 Research on Title 4 days
5 Title Finalization 3 days
6 Initial Project Planning Report 10 days
7 Research on Articles, Reports 3 days
8 Project Specification 3 days
9 Project Management (MS Project) 2 days
10 Report Completic 2 days
11 Ethical Consent Form 1 day
12 Initial Project Plan Submission 1 day
13 Planning Phase 6 days
14 Skill Assessment 3 days
15 Resource Identificat 2 days
16 Project Schedule Refinement 2 days
17 Research 40 days
18 Research on Data S 3 days
19 Read Articles and Reports 10 days
20 Research on Models 7 days
21 Research on classification Algorithm 12 days
22 Research on Database 4 days
23 Research on Image processing 8 days
24 Training and Implementation 35 days
25 Collection of image 6 days
26 Enhance knowledge reading further articles and 7 days
27 Initialization of TensorFlow and image processing 7 days
28 GUI implementaion 3 days
29 Database Management 4 days
Ready
New Tasks : Manually Scheduled

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

Microsoft Project

MS PowerPoint

ChatGPT

Chrome (Web Browser)

VS Code (IDE)

GitHub (Version Control)

Python

Java

Google Meet

TensorFlow

Human Resource

I am working on my Project with the following people

Name:	**Role:**
	Module Leader Supervisor

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].

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