PDE3112-Formal Proposal Form

Student Name	Sulthana safeer
Student ID Number	M00849556
Study Status	3rd Year
Campus	Middlesex University Dubai
Date of Submission	1/02/2024

Type of Research Proposal	Conceptual modeling, Applied, Exploratory, Experimental
Name of Supervisor	Dr Maha
Title	Facial recognition mood-based project (therapy software)

Key Words	*CNN, OPENCV, PYTHON, DEEP LEARNING, MACHINE LEARNING, mySQL, Mood Detector*
Problem Definition	The primary users of the Mood Detection System include developers integrating emotion-aware features into applications, mental health professionals, and researchers studying human-computer interaction.
Research Question(s)	1. How accurate and reliable is the ML and AI-based mood detector in recognizing and classifying different emotional states? 2. Are there cultural biases in the training data that may impact the model's performance? 3. How does the model perform in real-time mood detection scenarios?
Aims	Develop a Mood Detection System that utilizes advanced Machine Learning (ML) and Artificial Intelligence (AI) techniques to accurately identify and classify human emotions based on various input modalities.
Objectives	To Build a software using deep learning and learn advance method of development
Evidence of Requirements	Creating a machine learning (ML) and artificial intelligence (AI)-based mood detector necessitates a combination of technical and user-centric needs. Below is a list of evidence-based prerequisites for such a system: Mood Classification Algorithms:

	Evidence includes research articles, academic publications, and industry case studies that demonstrate effective machine learning algorithms for mood classification. *`Requirement: Develop and refine machine learning models (e.g., natural language processing models, sentiment analysis) for effective mood detection.* *Evidence includes user feedback from usability tests and surveys.* *Create an interface in which users can enter text, audio, or other relevant data for mood detection. Consider the user's preferences and ease when submitting data.* *Real-Time Analysis:* *Studies on real-time analysis in mood detection systems.* *Create algorithms that can analyze data in real time and provide users with rapid feedback on their mood states.* *User Privacy Measures:* *Adherence to data protection regulations and user comments on privacy issues.* *To secure user information, implement strong privacy protections such as data anonymization, encryption, and clear privacy rules.* *Continuous Learning Models:* *Research on adaptive and continuous learning models.* *Design the system to continuously learn and adapt to users' changing expressions of emotion.*
Context Description	*In the contemporary landscape of digital well-being and mental health awareness, the fusion of Artificial Intelligence (AI) and Machine Learning (ML) technologies has paved the way for innovative solutions aimed at understanding and managing emotional well-being. One such groundbreaking application is the development of an AI and ML-based mood detector.*
Research Methodology	In this project, The initiative aims to overcome restrictions through a well-organized strategy. We acknowledge the potential for errors and faults due to the complexity of machine learning algorithms and the need to connect various hardware and software components to ensure model retraining and the system's full functionality. Conceptual modeling allows for adequate evaluation and further study before implementation, saving both time and money. Additional research methodology considerations are included. Using available material, including journals and scholarly publications.
Brief Product Description	Advanced AI Algorithms: Our Mood Detector employs state-of-the-art AI algorithms to interpret facial expressions, voice tonality, and other subtle cues to gauge the user's emotional condition with high precision. Real-time Monitoring: Experience instantaneous mood analysis with our device, allowing users to track their emotional well-being and receive timely feedback. The real-time monitoring feature ensures a proactive approach to emotional health. User-Friendly Interface: The device boasts a user-friendly interface that makes it accessible to users of all ages. The intuitive design allows for seamless interaction and a hassle-free experience. Customized Insights: Gain valuable insights into your emotional

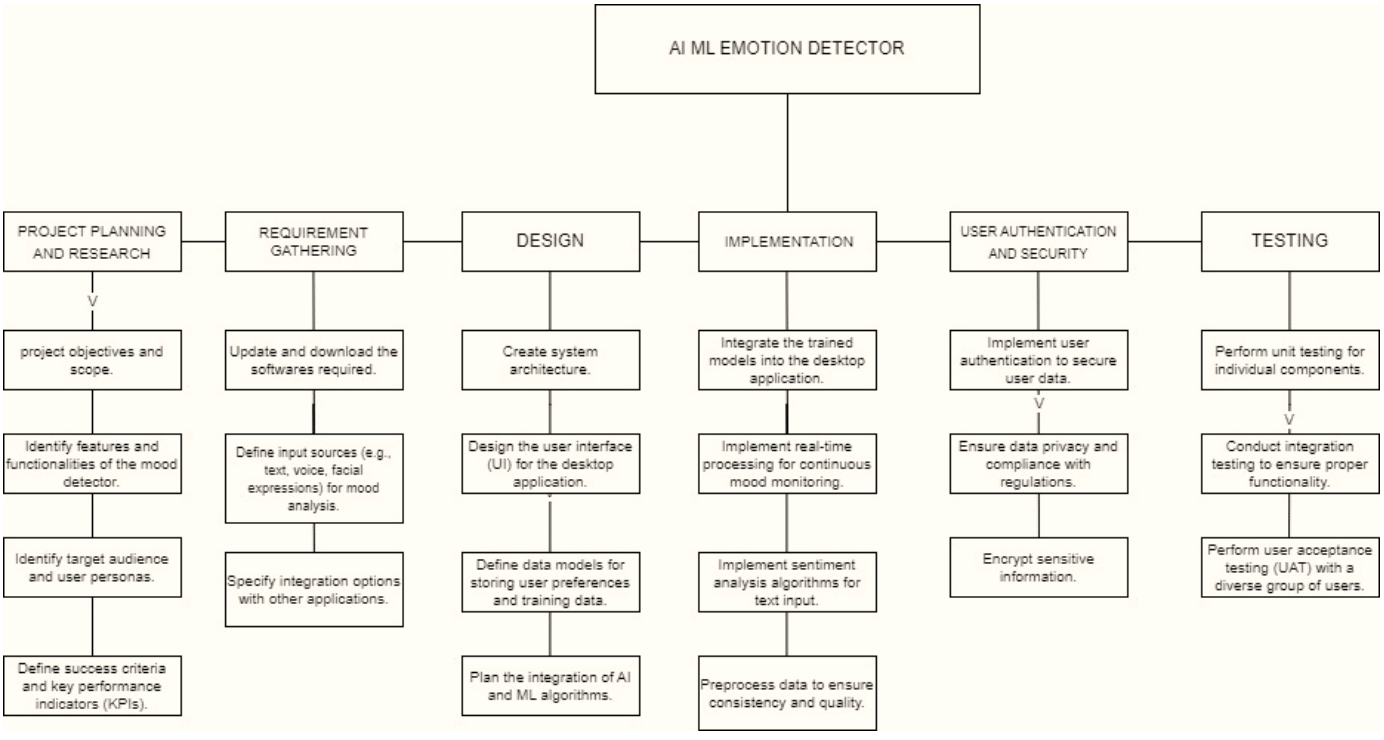
	patterns over time. The AI and ML components continuously learn and adapt to provide personalized recommendations and suggestions for enhancing mood and well-being. Privacy and Security: We prioritize user privacy and data security. The Mood Detector operates locally on the device, ensuring that sensitive emotional data remains confidential. We adhere to the highest standards of security to protect user information. Compatibility: The Mood Detector seamlessly integrates with various devices, including smartphones, tablets, and smart home systems. This ensures that users can conveniently access their mood data and insights from their preferred platforms. Community Support: Join a community of users sharing their experiences and insights. Our Mood Detector fosters a supportive environment where individuals can connect, share, and learn from each other's emotional journeys.
Deliverables	hardware- camera software- as mentioned above
Resources	Research paper, Python, OpenCV, MySQL, LBPH Algorithm, TensorFlow, tKinter
Bibliography/list of References	[1] "1/9 - Python Project Tutorial, Advance, Face Recognition, Student Attendance System," *www.youtube.com*. https://youtu.be/mYVS7QjNjvg?feature=shared (accessed Feb. 06, 2024). 2] M. A. Lumley, J. L. Cohen, G. S. Borszcz, A. Cano, A. M. Radcliffe, L. S. Porter, H. Schubiner, and F. J. Keefe, ''Pain and emotion: A biopsychosocial review of recent research,'' J. Clin. Psychol., vol. 67, no. 9, p. 942, Sep. 2011, doi: 10.1002/JCLP.20816.

To be completed by the supervisor: Is the Proposal Acceptable?	
If no, please give feedback:	

GANTT-CHART: Project Plan and Deliverables

	Week 13	Week 14	Week 15	Week 16	Week 17	Week 18	Week 19	Week 20	Week 21
Final Cut proposal									
Define Project Scope									
Proposal Presentation									
literature review									
software implementation									
Algorithm use									
Real time face detection									
BOT AI implementation									
System Testing									
Debug and fix bugs									
Test system and evaluate									
Report									

WORK BREAKDOWN STRUCTURE



Signed (digitally)……Date……

EXPLANATION OF TYPICAL TERMS USED IN RESEARCH PROPOSALS

Title: Write a title which briefly describes the research problem and your approach to it.
Key words or phrases: to give a clear and concise description of the scope and nature of the report, such as the main variables to be considered.

Problem definition: Correctly defining the problem is the crucial first step in the research process. If the research problem is defined incorrectly, the research objectives will also be wrong**.** Problems must be stated in terms of underlying causes- they must be structured in a way in which they can lead to a solution. It is critical that the statement be useful for development and evaluation of potential solutions.

Research Question: Indicate what you want to know most and first out of your research.

Study Area Review: Explain the technical/discipline area you will be working, the problem area that you will be addressing in your research, and where would you locate your intended work in relation to previous researchers.

Research Question(s): Cannot be answered by YES or NO, must generate and argument.

Aims: They
represent the changes you hope to achieve as a result of your work.

Objectives: *A*re the activities you undertake and the methods you propose to bring these changes about.

Evidence of requirements: *Outlining* the scope and range of facts/data the researcher has in support of the validity of the project. Such requirements would typically include conceptual, empirical, market demands, etc.

Deliverables: Defining your intended outcomes (be as specific as possible). It is part of good project planning. Deliverables are linked to your aims.

Milestones: A milestone is the end of a stage that marks the completion of a work package or phase. A deliverable is the outcome of a milestone.

Project/Research Type: The nature of your research? For example, descriptive, exploratory, diagnostic, analytical, applied empirical (i.e. experimental), case study, etc.

Research Methodology: Methods and techniques used in undertaking the research. There are two basic approaches, quantitative and qualitative. Quantitative involves the generation of data, through experiments or simulation, in quantitative form, which can then be analysed. Qualitative is concerned with subjective assessment of opinions, behaviour, impressions via, for example, interviews.

Resource Audit: Information on the hardware, software and research resources you will be using during the course of your research, be specific i.e. give the name of any software and the titles of appropriate journals (although you will be adding to this list during your project).

Ethical Approval: Explain what contact you will have with end users and all other stakeholders. Ethical issues in research typically include participants' interests and rights, informed consent of participants, avoiding deception, confidentiality, possible impact and consequences, etc.

Context Description: Refers to typical factors and constraints that may influence the research process and/or its outcomes (e.g. timing, resources).

Project plan (including Gantt chart): Refer to a Gantt chart or other document that shows project activities along a timeline. A **Gantt chart** is a type of bar chart that illustrates a project schedule. Gantt charts illustrate the start and finish dates of the terminal elements and summary elements of a project**.**