**Project Initialization and Planning Phase**

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| Date | 08 July 2024 |
| Team ID | SWTID1720075414 |
| Project Title | Panic Disorder Detection |
| Maximum Marks | 3 Marks |

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| **Project Overview** | |
| Objective | Developing a real-time, accurate, and reliable system for early detection and monitoring of panic disorder using multimodal physiological signals and machine learning. |
| Scope | The Panic Disorder Detection project focuses on developing a system that continuously collects and analyzes multimodal physiological signals using machine learning to detect and monitor panic disorder in real-time. It encompasses the integration of wearable sensors, data processing, machine learning model deployment, and the creation of user interfaces for patients and healthcare providers, ensuring seamless interoperability with existing Electronic Health Record (EHR) systems. |
| **Problem Statement** | |
| Description | The project addresses the challenge of accurately diagnosing panic disorder, which relies on subjective reports and often leads to misdiagnosis. It aims to develop a real-time detection system using physiological signals and machine learning for timely, accurate identification and better management of the disorder. |
| Impact | Some of the important impacts that this project provides include:  **1. Improved Patient Outcomes:** Early and accurate detection enables timely intervention, reducing the severity and frequency of panic attacks, and improving overall mental health and quality of life for patients.  **2. Enhanced Treatment Efficacy:** Objective data-driven insights allow healthcare providers to tailor treatment plans more effectively, leading to better management of the disorder.  **3. Reduced Healthcare Costs:** Early detection and accurate diagnosis can prevent unnecessary medical tests and treatments, reducing overall healthcare costs and resource utilization.  **4. Increased Access to Care:** Real-time monitoring and remote diagnostics can make mental health care more accessible, especially for those in underserved or remote areas.  **5. Decreased Stigma:** An objective diagnostic tool can help reduce the stigma associated with panic disorder by providing a clear, data-based understanding of the condition.  **6. Research and Development:** The collected data can be used for further research into panic disorder, potentially leading to new insights and advancements in treatment. |
| **Proposed Solution** | |
| Approach | The detailed Methodology used as a solution for this project include:   1. Data Collection 2. Data Preprocessing 3. Model Development 4. Model Monitoring and Analysis 5. User Interface Development |
| Key Features | Some of the unique aspects of this mode of project development include:   1. User-Centric Design 2. Continuous Improvement 3. Adequate Monitoring 4. Unique Design Integration |

**Resource Requirements**

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| **Resource Type** | **Description** | **Specification/Allocation** |
| **Hardware** | | |
| Computing Resources | CPU/GPU specifications, number of cores | Intel Core i7,AMD Ryzen 7, Apple M1,4-8 cores |
| Memory | RAM specifications | 8 - 16 GB |
| Storage | Disk space for data, models, and logs | 512 GB SSD |
| **Software** | | |
| Frameworks | Python frameworks | Flask |
| Libraries | Additional libraries | Numpy,pandas, matplotlib,sklearn,xgboost,pickle |
| Development Environment | IDE, version control | Jupyter Notebook, Git, Spyder, Visual Studio Code |
| **Data** | | |
| Data | Source, size, format | Kaggle dataset,12000 records, .csv format |