Subject: **Proposal for Advancements in Wandering Guardian for Dementia Patients and a future Research Paper Intent**

Dear Professor Dr. Godfrey S. Winstor,

We are writing to propose advancements in our major project focused on advancement in wearable device for tracking the paths of dementia patients. We intend to enhance the functionality of the device to provide more comprehensive care and support for individuals with dementia. Additionally, we aim to use this project as a foundation for a research paper, contributing to the growing field of assistive technology in dementia care.

The proposed advancements include integrating the following features into the wearable device:

A. Heart Rate/O2 Monitoring:

- Incorporate a heart rate monitor to track real-time heart rate and blood oxygen data. This addition will provide valuable insights into the patient's physiological well-being, allowing for a more holistic approach to care.

B. Fall Detection:

- Implement an accelerometer and gyroscope for fall detection capabilities. Detecting sudden movements or falls will enable the device to automatically alert caregivers, ensuring prompt assistance in critical situations.

C. Gait Analysis:

- Utilize motion sensors to analyze the patient's gait. Changes in walking patterns can be indicative of cognitive decline or physical health issues, offering an additional layer of information for caregivers and healthcare professionals.

D. Vocal distress detection:

- Integrate a microphone for voice analysis. Monitoring speech patterns and vocal cues can contribute to a more nuanced understanding of the patient's mental state, helping in early detection of potential issues.

E. Emergency Button:

- Include an emergency call button on the device. This feature will allow patients to request help quickly in case of distress or emergency, enhancing their safety and security.

F. Caregiver Portal:

- Develop an online caregiver portal or mobile app that syncs with the wearable device. This portal will empower caregivers to monitor the patient's data, receive real-time alerts, and actively participate in the patient's care plan.

We aim to create a wearable device that not only tracks the physical movements of dementia patients but also provides a more \*comprehensive\* set of data for a better understanding of their overall health and well-being. The inclusion of these features aligns with recent advancements in assistive technology and reflects our commitment to improving the quality of life for individuals affected by dementia. Furthermore, we intend to document our advancements and findings in a research paper. This paper will contribute to the academic discourse on assistive technology in dementia care, sharing insights into the potential impact of wearable devices on patient outcomes and caregiver experiences.

We would be grateful for your guidance and support as we embark on these advancements in our major project. Your expertise and mentorship will undoubtedly enrich the depth and quality of our research and development efforts.

Thank you for considering our proposal. We look forward to the opportunity to discuss these advancements further and receive your valuable insights.

Best Regards,

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