Requirement Document for Elderly Care Wearable Device

1. Purpose: To develop a state-of-the-art wearable device designed specifically for elderly patients. This device will monitor key health parameters essential for diabetes management and overall well-being, enhancing the quality of life and enabling proactive healthcare.

2. Target Parameters:

- **Blood Glucose Level:** Incorporate a non-invasive, continuous blood glucose monitoring sensor. This will provide critical real-time data for managing diabetes effectively.
- **Heart Rate and Blood Pressure:** Sensors to monitor cardiovascular health, vital for patients with a history of hypertension or heart disease. Continuous monitoring will help in early detection of cardiac anomalies.
- **Body Mass Index (BMI):** Integrate sensors to measure weight and height, allowing the device to calculate BMI. This is crucial in managing obesity, a key risk factor in diabetes. User can provide height and weight through voice assistant or filling manual their details in app.
- **Physical Activity Tracker:** Utilize an accelerometer and gyroscope to monitor daily activity levels. Physical activity is essential for managing diabetes and improving overall health.
- **HbA1c Level Monitoring:** A sensor or mechanism to measure HbA1c levels periodically. This provides a long-term view of blood glucose control.
- **Age and Gender Input:** A user-friendly interface for inputting demographic details, which can be used to personalize health recommendations.
- **Smoking History Input:** A feature to record smoking history, either directly on the device or through a linked mobile application.

3. Additional Features:

- **Data Syncing:** Ensure the device can sync data with a mobile application for real-time monitoring, historical data analysis, and sharing with healthcare providers.
- **Alerts and Reminders:** Implement alerts for medications, doctor's appointments, and abnormal health readings. This feature plays a critical role in ensuring adherence to treatment regimens.
- **Emergency SOS:** Incorporate a mechanism to quickly alert emergency services or caregivers in case of a health emergency. This feature is vital for elderly users who might be living alone or in high-risk health conditions.
- **User-Friendly Interface:** Given the target demographic, it’s imperative that the device interface is intuitive, simple, and easy to navigate for elderly users.

4. Compliance and Safety:

- **Regulatory Compliance:** The device must adhere to the health and safety standards set by medical device regulatory authorities.
- **Data Privacy and Security:** Implement robust data protection measures to comply with healthcare data privacy laws. This includes secure data transmission and storage.

- **Durability and Reliability:** The device should be durable and reliable, considering that elderly users might have limited ability to perform frequent maintenance or troubleshooting.
- **Comfort and Ergonomics:** Design the wearable to be comfortable for long-term use, considering the possible skin sensitivities and physical limitations of elderly users.
- **Battery Life and Charging:** Ensure that the device has a long battery life and an easy charging mechanism, considering the users' convenience and potential forgetfulness.

5. Future Considerations:

- **Scalability:** Design the device with the potential for future feature additions, such as integration with new health monitoring technologies or software updates.
- **Interoperability:** Ensure the device's compatibility with other health systems and devices, facilitating a holistic approach to health management.