2)

By using the context monitoring app, we are taking the symptoms input from the user and symptom rating. With this information, we can make several spontaneous and necessary suggestions to help the user make immediate health decisions.

These are the few feedbacks the app can possibly provide the users after using it.

Based on the symptoms, we can approximately predict what kind of illness it can be. Depending on the severity of each symptom, we can also suggest how severe the illness is. Based on the severity, we can suggest whether or not the user needs to visit a doctor, and then decide about the next step he can take to improve his condition. With access to the calendar and schedule of the user, we can make suggestions to re-schedule or cancel his pre planned events. For instance, consider software employees, here we can suggest them to take a day off from work. With very high severity of symptoms, the app will continue to do things that are helpful to the user. For example, if the user is away from home, the app will automate the process of booking an ambulance for them. If they are in a remote location, the app will alert frequently contacted people, or the family, about their illness.

1)

If we can use an application similar to health-dev to build context monitoring applications, the following specifications can be considered as inputs. Specifications for Smartphone include widgets in Java/Kotlin as well as the UI requirements in XML. Specifying the minimum version requirements for SDK, API, etc. Also, the permissions needed for the application to run, like storage permission, camera permission and record audio permission should be given as inputs.

Regarding sensor specifications, the sensor characteristics for a respiration rate, we require sensors like an accelerometer and an orientation sensor, which aid calculating phone's elevation, change in mobility of the user as well as the variations in logging time and sensor recording time. Likewise, for a heart rate sensor, a camera specifications such as flash availability, frames per second, colour Map, resolution of camera, and recording audio-video for specific time.

Network specifications, includes data broadcast and storage of sensors data, such as storage location path, requesting permissions, and sending and acknowledgement of transmitted data. The limited number of specifications is due to remote storage of data.

Other type of specifications includes data specification such as data type of required symptoms data and their corresponding ratings type as float, also other required file formats to be precisely named for usage.

3)

Mobile computing systems are distributed systems with a network to communicate between different machines. My decision that application development is not the most important topic of mobile computing remains the same prior and after the project 1. The few reasons for this opinion of mine are –

1. Operating systems : The mobile OS plays an important role in developing the mobile applications. Any future changes in these systems and also because of the dependency it has created over the years, it can possibly create a havoc among the users.
2. Security and Privacy concerns : With the constant and increasing use of mobile applications, also raises the concerns over data privacy and individual’s security because of which many privacy regulations are in force.
3. Emerging Technologies: The new and interesting technology fields like virtual and augmented reality(AR/VR) are playing an important role in transforming the field of mobile computing, application development is just playing a part in the whole transformation.

However, with all these views on other technologies, I see several uses of mobile computing:

1. It can be used to build advanced applications to aid users in several walks of life like transportation, medical and health sciences.
2. It helps user to connect to his needs from the remote location.
3. Context aware applications can take temporal context, location context and several other things and go ahead and make valuable suggestion to users.
4. It can be used to generate more income to automobile and food ordering applications.

Context-Monitoring Application.

Map API.

Artifiicial Pancreas data – Insulin levels – orders relevant.

Emergency contacts ki info.

**Guardian Angle**

The project you've described is highly complex and multifaceted, so the project abstract should capture its essential elements and objectives. Here's an extended version of the project abstract for "Guardian Angel":

Title: Guardian Angel: A Context-Aware Mobile Computing Application with Integrated Artificial Pancreas and Autonomous Vehicle Safety Control

Purpose/Objective: "Guardian Angel" is a personalized context-aware application aimed at improving the quality of life and safety of individuals with diabetes and enhancing rider safety and emergency response. The project's primary objectives are to develop a comprehensive system that monitors and manages blood sugar levels in real-time and enhances rider safety through an autonomous vehicle advisory controller. This multifaceted project includes i) Blood Sugar Management, ii) Autonomous Vehicle Safety and iii) Emergency Response

Blood Sugar Management: The "Guardian Angel" system integrates an artificial pancreas that continuously measures and regulates blood sugar levels. The system uses this data to provide personalized recommendations for coffee choices at Starbucks, hotel bookings with appropriate meal options, and purchasing travel tickets tailored to the user's health condition and schedule.

Autonomous Vehicle Safety: The project also features a Level 3 autonomous vehicle with an advisory controller that employs fuzzy logic. This controller is capable of seamlessly switching between automated and human-controlled braking to prevent impending crashes and ensure passenger safety.

Emergency Response: In situations where an accident is imminent and unavoidable, "Guardian Angel" is designed to contact emergency services and provide the user's medical history, enabling timely and appropriate medical intervention.

Methodology/Approach: The project involves extensive software development, integration with an artificial pancreas, autonomous vehicle technology, real-time data analysis, and emergency communication protocols. Machine learning and fuzzy logic algorithms are employed to provide personalized recommendations and autonomous vehicle control.

Results/Expected Outcomes: "Guardian Angel" aims to empower individuals with diabetes to maintain optimal blood sugar levels, make informed choices about their diet and travel safely. Additionally, the project seeks to significantly improve road safety by preventing accidents and facilitating rapid emergency response.

Significance/Importance: This project addresses two critical aspects of modern life: health management for individuals with diabetes and road safety enhancement through autonomous vehicle technology. By integrating both, "Guardian Angel" strives to set new standards for health-conscious travel and road safety.

Target Audience: The primary audience includes individuals with diabetes and motorists, but the implications of this project extend to healthcare professionals, transportation authorities, and the broader community concerned with road safety and public health.

Keywords: Diabetes management, artificial pancreas, autonomous vehicle safety, fuzzy logic control, emergency response, road safety.

Timeframe: The project is expected to be completed within [mention estimated timeline].

Contact Information: For additional information or collaboration, please contact [Your Name] at [Your Email Address].

Conclusion/Summary: "Guardian Angel" is a groundbreaking project that integrates health management and road safety into a single, context-aware mobile computing application. By providing real-time blood sugar monitoring and autonomous vehicle safety control, this project seeks to enhance the well-being and safety of users, setting a new standard for integrated health and safety solutions.

This abstract outlines the multifaceted nature of your project and its potential impact on both individual health and road safety. It's important to note that a project of this complexity would require substantial resources, expertise, and collaboration between experts in various fields.

**Guardian Angle**

For your "Guardian Angel" mobile computing project, the project abstract might look something like this:

Title: Guardian Angel: An Integrated Mobile Computing System for Managing Blood Sugar Levels and Enhancing Quality of Life

Purpose/Objective: The "Guardian Angel" project aims to develop a comprehensive mobile computing solution for individuals with diabetes, offering real-time monitoring and proactive assistance in managing blood sugar levels. This project seeks to enhance the quality of life for people with diabetes by leveraging artificial pancreas technology to monitor and control glucose levels.

Scope: The project encompasses the development of a mobile application integrated with an artificial pancreas device that continuously measures blood sugar levels and administers insulin or glucose as needed. The system will have the following functionalities:

Coffee Booking: Based on the user's real-time blood sugar levels, the application will provide personalized coffee recommendations from Starbucks, considering the sugar content in each drink.

Hotel Booking: The system will suggest nearby hotels with meal options tailored to the user's dietary requirements and blood sugar levels.

Travel Ticket Booking: Users will be able to purchase travel tickets, such as flights or train tickets, based on their location, destination, and specified travel times. The system will also consider blood sugar management during travel.

Methodology/Approach: We will employ a combination of mobile app development, artificial pancreas technology, real-time data analysis, and integration with external service providers to achieve these functionalities. The system will use machine learning algorithms to provide personalized recommendations.

Results/Expected Outcomes: The "Guardian Angel" system aims to empower individuals with diabetes to maintain optimal blood sugar levels, make informed choices about their diet, and travel safely while considering their health condition. This project anticipates improving the overall well-being and quality of life for users.

Significance/Importance: Diabetes is a widespread chronic condition, and managing it effectively can be challenging. This project addresses the pressing need for an all-in-one solution that not only monitors blood sugar levels but also assists in daily life activities and choices, thereby enhancing the health and autonomy of individuals with diabetes.

Target Audience: The primary audience for this project includes individuals with diabetes and their caregivers. Additionally, healthcare professionals, diabetes organizations, and the broader public health community may find value in the system.

Keywords: Diabetes management, artificial pancreas, mobile computing, real-time monitoring, personalized recommendations.

Timeframe: The project is expected to be completed within [mention estimated timeline].

Contact Information: For further information or collaboration, please contact [Your Name] at [Your Email Address].

Conclusion/Summary: "Guardian Angel" represents an innovative and holistic approach to diabetes management, offering real-time blood sugar monitoring, personalized recommendations for coffee and meal choices, and travel assistance. This project holds the potential to significantly improve the daily lives of individuals with diabetes and contribute to their overall well-being.

Please note that you should tailor the abstract to your project's specific goals, objectives, and features, and include any additional details as necessary. This abstract is a template and should serve as a starting point for your project's summary.

**Condensed Angle**

Certainly, here's a condensed version of the project abstract with the key points grouped into two paragraphs:

Title: Guardian Angel: A Context-Aware Mobile Computing Application with Integrated Artificial Pancreas and Autonomous Vehicle Safety Control

Objective: Guardian Angel is a pioneering project that aims to revolutionize health management and road safety through a context-aware mobile computing application. The project's primary objectives are to develop a comprehensive system for real-time blood sugar management using an integrated artificial pancreas and to enhance road safety through an advisory controller in Level 3 autonomous vehicles.

Scope and Methodology: Guardian Angel combines health and safety features by integrating an artificial pancreas to continuously monitor and regulate blood sugar levels. This data is utilized to offer personalized recommendations for coffee choices at Starbucks, hotel bookings with suitable meal options, and travel ticket purchases, all tailored to the user's health status and schedule. In parallel, an autonomous vehicle advisory controller employs fuzzy logic to seamlessly switch between automated and human-controlled braking to prevent accidents and ensure passenger safety. In cases of impending crashes, the system contacts emergency services, providing the user's medical history to enable prompt and effective medical intervention.

Significance and Target Audience: Guardian Angel is poised to empower individuals with diabetes to manage their health effectively while making informed choices about their diet and travel. Simultaneously, it contributes to road safety by preventing accidents and facilitating emergency responses. The project's impact extends to healthcare professionals, transportation authorities, and the broader community concerned with road safety and public health, ushering in a new era of integrated health management and safety in mobile computing.

This condensed version provides a comprehensive overview of the project's goals, features, and significance in two succinct paragraphs.