

ELDERS EASE

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ABSTRACT

The resources we use in our day-to-day lives have changed dramatically thanks to technological advancements. Everyone, especially the elderly, does not use technology in the same way. The proliferation of electronics and their implementations makes it difficult for the elderly to adapt. The aim of this mobile application is to help the elderly. Voice-based assistance, media access, emergency contact (call/text/location sharing), reminders, basic workout routines, and a BMI calculator are among the features. When assistance is needed, the GPS is enabled to retrieve the location and send it to the registered guardian. A picture of the incident can also be sent using the camera function. The basic needs of the elderly can be met with the aid of this app, which has icons that, when pressed, tell you what you need with recorded audio.

Introduction

With the advancement of technology, traditional methods for making everyday life easier have become obsolete. It has shaped and changed how people use assets on a daily basis. The older generation has made adjustments to the latest fashion trends. Despite their willingness and ability to learn and cope with technology, the elders find it difficult to adapt and keep up with the ever-changing technological trends. The way people use cell phones has evolved dramatically over time. Because of their convenience and unique features, smart phones must be learned how to be used. The older generation has seen nearly the entire transition from wired phones to mobile devices and smartphones. In today's world, mobile apps are extremely important. In a matter of seconds, we can digitally communicate with friends, relatives, and acquaintances. It takes only a few seconds to access media. We can easily share our location, photos, and documents. Apart from the above applications, smartphone apps have proven to be useful to us in a variety of ways. Learning how to use smart phones from scratch, particularly mobile applications with a variety of useful features has never been easy for senior citizens. There is a need for successful learning and the ability to comprehend the importance of such functions. Older people have a hard time using mobile devices because they find them frustrating. One solution is to provide easy access and basic functionality that the older generation will understand. The majority of today's smartphone apps aren't designed for people over the age of 50. Built-in voice commands (basic needs), emergency services (call, email, location sharing, etc.), reminders, age-specific quick workout routines, BMI calculator, and one-tap access to music and YouTube are among the features.

II LITERATURE REVIEW

1. Inside me: A proposal for healthcare mobile application

This app assists the consumer in becoming more mindful of their wellbeing. This programme allows users to keep track of their workouts as well as record and assess their fitness. It gives the user instructions and recommendations to help him or her preserve his or her wellbeing. It offers a comprehensive risk evaluation. The risk assessment is carried out using a questionnaire, medical check-up record, wearable devices, and machine learning algorithms. [1]

2. Internet of Things (IoT) Based Smart Health Care Medical Box for Elderly People

This is a smart IoT-based healthcare device that includes an intelligence box with sensors and a server for routine health monitoring. The doctor and patient do not meet in person, and the smart medicine box has built-in wireless internet access. The laptop serves as a server, containing basic details about both the doctor and the patient, as well as the prescription and appointment date. The doctor and the patient both have their own IDs and passwords to access the server. If necessary, the medication can be changed, and the doctor can take urgent action in the event of an emergency. [2]

3. Review of the Internet of Things for Health Care Monitoring”

The importance of controlling indoor air quality has grown in importance. The development of the Internet of things (IoT) allows for easy patient examination and tracking procedures using tiny IP-based wireless sensors that can be mounted within the patient's body. The Internet of Things (IoT) is a network of physical objects or things embedded with sensors, software, and other technologies that can link to and share data with other devices and systems over the internet. Customized health care is possible at a lower cost.. [3]

4. A Health Mobile Application and Architecture to support and automate in home consultation

Home Care facilities provide individualised treatment for frail patients. In the field of health care, service quality is critical. To assist clinicians before, during, and after home visits, the Health Mobile Application helps to facilitate the integration and automation of long-term activities carried out through various phases of care. Treatment adherence is also included, as well as follow-up reminders and data for setting up other

medical applications. It aids in improving the quality of health care by reducing errors caused by misreading medical prescriptions or misconfiguring medical reminder apps..[4]

5.Security Evaluation of Android Mobile Health Care and Fitness Application

The majority of Health Care apps have an unencrypted link to an internet server, posing a significant risk to the protection of data and personal details of Android users. The security aspect of network communication analyses the Wi-Fi communication between the application and the internet. [5]

III IMPLEMENTATION

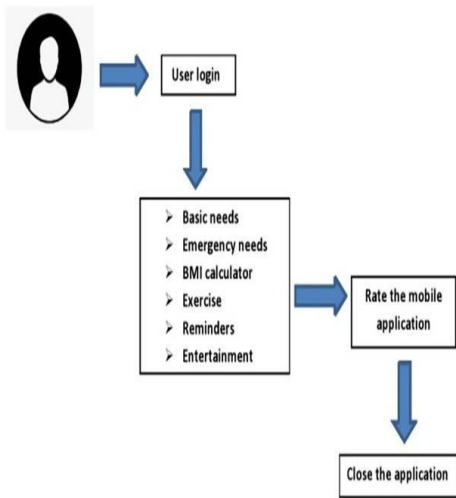


Fig.1 Architecture Diagram

With a user-friendly interface, customizable icons, and the use of symbols instead of words for icons, our proposed system provides all of the assistance required by the elderly. It assists them with their basic and emergency needs, as well as providing health care assistance.

LIST OF MODULES

The modules that make up our proposed framework are as follows:

- Module 1: Login Page
- Module 2: Select an Option from list of options
- Module 2.1: Basic Need
- Module 2.2: Emergency Needs
- Module 2.3: Exercise
- Module 2.4: BMI Calculator
- Module 2.5: Medical Reminders
- Module 3: Entertainment

MODULE 1: LOGIN PAGE

The Login Page is the first page in the application. The user must enter their User ID and password correctly. If the user is a first-time visitor, he or she must first register and then log in to the app. If the user does not enter the correct User ID and password, a message appears instructing them to do so.

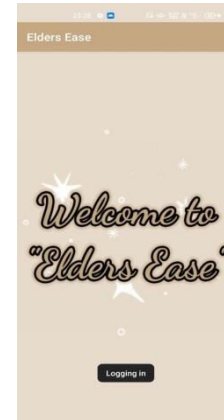


Fig. 2. Login Page

MODULE 2: SELECT AN OPTION

The user is led to this page after a successful login. This page helps them to pick the level of assistance they need. The different types of assistance offered are as follows:

1. To help them with their basic needs.
2. To provide emergency contact (calls, texts, location sharing, and camera access)
3. To provide a BMI calculator to keep BMI in check.
4. To provide voice-based assistance.
5. To provide easy-to-follow workout routines
6. To serve as a reminder
7. To provide a means of accessing the media

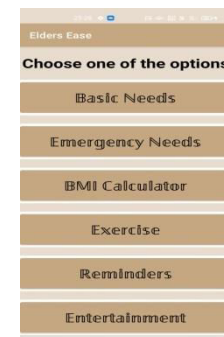


Fig. 3. Select an option

MODULE 2.1: BASIC NEEDS

This section of the app has customizable icons that, when tapped, create a recorded voice for that specific need. The application's basic needs (built-in voice commands) include the following:

- restroom
- water
- food
- sleep

These icons have symbols that represent their basic needs, and additional needs may be added as well. When the elderly click these buttons, the registered voice messages or text messages are sent to the guardian.



Fig. 4. Basic Needs

MODULE 2.2: EMERGENCY NEEDS

This feature of the mobile provides assistance in the following

- Make a call to the Guardian
- Send message to the Guardian
- Send their location
- Capture the moment

The Guardian(s)' contact numbers have been saved previously, and when they are called, a message is sent to

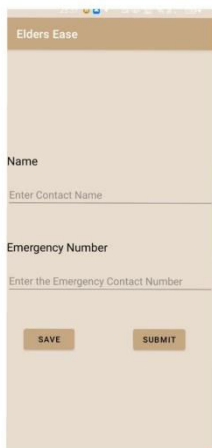


Fig 5. Add emergency contact

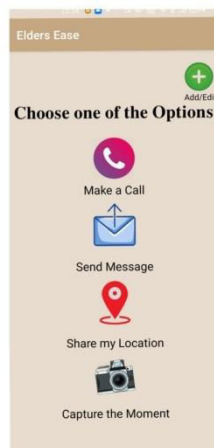


Fig 6. Emergency needs

them.

MODULE 2.3: HEALTH CARE ASSISTANCE

This feature of the mobile application provides health assistance which includes

- Reminders
- Simple exercises
- BMI Calculator

1. Medical Reminders - These reminders assist the user in setting reminders that are convenient for them. These reminders assist the patient in taking their medications on time.

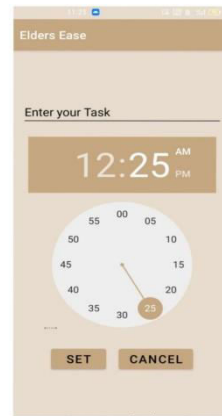


Fig 7. Reminder set-up

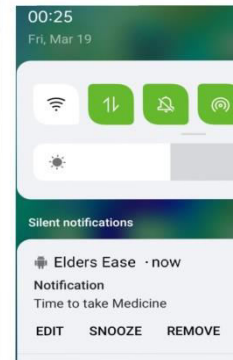


Fig 8. Reminder notification

2. Simple Exercises – The user can select the level of difficulty from the following

1. Easy
2. Medium
3. Hard

At this stage, there are a variety of exercises to choose from. Each exercise includes instructions on how to complete it as well as the time required to complete it.



Fig 9. Choose difficulty

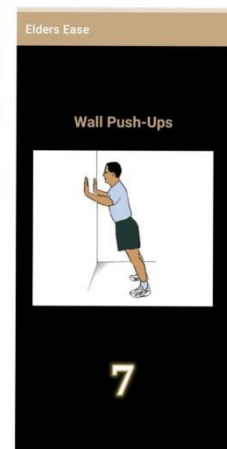


Fig 10. Routine screenshot

3. BMI Calculator – It calculates the BMI of the user using the formula below

$$BMI = \frac{kg}{m^2}$$

Where kg is the weight in kilograms and m is the height in meters.

Underweight is defined by a BMI of 18.5 or less.

Normal is described as 18.5 to 25.

Overweight is defined as a body mass index of 26.0 to 30.

Obesity is described as a BMI of 30 or higher.

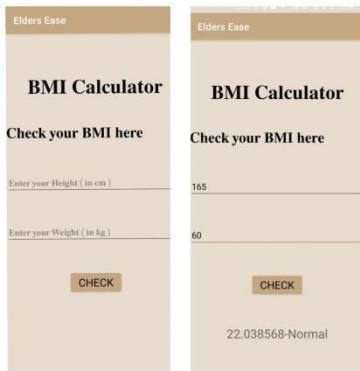


Fig 11. Enter the values

Fig 12. Result

MODULE 3: ENTERTAINMENT

The Entertainment Module includes functions such as:

1. Gallery viewing
2. Access to spotify
3. Access to YouTube

This feature includes a direct connection to YouTube, Spotify, and the user's mobile phone's Gallery.

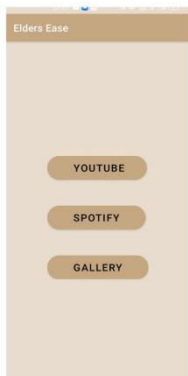


Fig 13. Choose an option

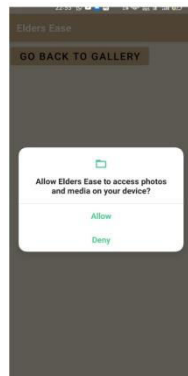


Fig 14. Access permission

IV. RESULTS AND DISCUSSION

Elders Ease is a smartphone app created with Android Studio. Java and XML were used as programming languages. It includes features that are advantageous to the elderly. The app's basic features help users to enjoy it in a very straightforward manner. It provides disabled users with easy-to-understand voice commands. In an emergency, this app has made it easy to contact friends and family. You can access music and YouTube with a few mouse clicks. The app will allow users to create a personal gallery of their favourite images and videos.

Reminders, exercise, and a BMI calculator are among the other features that are helpful to the elderly.

During the creation of the mobile application, we used the SQLite database to store the data, but later switched to Firebase because it was found to be more simple and sensitive. The app was run in real time on a phone using USB debugging, which simplified the process by downloading the

app's apk file directly to the phone instead of using an emulator. The Android Countdown Timer class is used to schedule a countdown until a time in the future that the user specifies, with daily updates at predetermined intervals. Apart from that, we had minor design issues that were ultimately resolved after the application's workflow was examined.

Achievements and Highlights - Our initiative has succeeded in providing Basic Needs, Emergency Needs, Reminders, and Health Care Systems, with each need having the ability to add their own personalized requirements. The mobile application performs as intended, and the time it takes to process inputs is within acceptable limits.

V. CONCLUSION

The problems that the older generation faces in their daily lives as a result of rapidly evolving technology in our cell phones are becoming more prevalent by the day. It is important to keep our older generations up to date with the rapidly evolving technologies in mobile. The mobile application satisfies all of the requirements for providing complete assistance to the elderly. In the long run, the application's basic functionality would be very useful. Elders do not need to be concerned with using many applications at the same time for their convenience. They should use this programme, which essentially caters to all of their cell phone needs. They can use this application without the help of others because it has basic features such as symbols and pictures as icons that are easy to understand. This way, we will close the gap so that even the elderly can use mobile apps for their needs and rely on them to make things easier for them.

VI. REFERENCES

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