Digital Assistant for Elderly People

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Abstract:

In this modern time there are are lots of social connecting apps like Instagram , Facebook , Telegram and many more for social connection . In fact the internet is found for connecting the peoples and reduced the distance amongst the people for communication purpose , but in today's generation despite of this lot many apps there is still a lot of gap among the people as people started spending that much of the time on technology rather than physical interaction face-to-face meetings and discussion.

The   one   who   is   familiar   with   the Technologies is good in adapting them and get engaged with them , but the one like the old aged people who are not adaptive to the Technologies facing lot of difficulties to get engage and spending most of the time by just sitting idle. Which leads to the stress anxiety   depression   mental   health   issues physical issues and many more .

To Overcome this problem we have created an application/ software which is quite useful to get interact with the old elderly people , basically these applications provide a user interface to the old elderly people to get engage and to listen a various stories music and for entertainment purposes . They can also have a audio chatbot to which they can talk with .

Our user Interface is so friendly that it is very easy to operate with very less numbers of button in very colorful Format which looks attractive and to be engaged .

we have also created the section for storytelling for which they can say about that story and we can trace out the data in the form   of   experience   for   the   business purposes ,As the Aged People is rich in Experience .

Our   application   is   useful   for   the entertainment of old people as well as collect the experience from their experience to analyse and for business purposes .We are preparing Solution for aged people Engagment and target to restrict the physical and Mental Problem Faced by Aged People .

Introduction:

Now a days depression and anxiety has become a major problem in the society. People suffer from it even at young ages. This is because of reduced social life and lack of expressing our thoughts. Past couple of years, during COVID-19 pandemic, this problem has increased.

The age group which is most vulnerable to this, is the senior citizens, that is, elderly people with 60+ age. The seniors have comparatively more free time and less activities to do. Also, due to digitalization, family members of younger generation, are always busy on mobiles and computers. Passing quality time with grand-parents, listening to their past stories seems a bit boring to this generation as compared to all the digital entertainment media. On the other hand, seniors seem to be somewhat uncomfortable around these digital devices.

To help the seniors, we need some medium, which is easy to use and provides all their needs. This paper discussed what needs are to be satisfied for the seniors. The paper also discusses how important things like reminiscing are for aged people. How it can help reduce mental problems and depression in elders and also help younger generations take lessons from them.

This paper also provides a possible solution to achieve the goal of helping seniors cope with loneliness and depression. Use of ML tools like voice assistant is also discussed.

Problem Statement :

Develop an application to:
a) **Reduce loneliness and depression in elderly people.**
b) **Help them reminiscing.**
c) **Provide Interface which is easy to use even for old age people.**

Literature Survey:

Old age people have a lot of free time, and comparatively less activities to do. This may cause anxiety or depression in them. The elder people need to socialize to cope with these problems. Connecting to other people is one of the basic needs for these people. This is psychologically beneficial, as it boosts stable emotions and minimizes depression and loneliness. Older adults tend to be in a better place emotionally if they're able to remain active in familiar communities in ways that are meaningful.

According to a study, the damage loneliness does is almost equal to smoking 15 cigarettes a day.Loneliness increases an individual's chance of developing clinical dementia by almost 64%.

According another study, almost 40% of older adults show signs of feeling lonely. Where 1-5% of healthy, and 11-13% of petients suffer from loneliness and depression. The number is more for seniors requiring home healthcare than hospitalized ones.

The authors of '*Understanding the care and support needs of older people'* stated that lack of social interaction may cause loneliness and depression in older people. They also state that work may be a contributing factor. Work may keep their minds busy, giving them a new purpose.

Rob Buck in his article '*What Primary Psychological Needs Do Aging Adults Have?'* also states the importance of community interactions for old age people. He also states that hobbies, developing new interests, and mentoring can provide purpose to these people. He also states that mental stimulation plays an important role in maintaining mental health. Reading, playing games, reminiscing, sharing memories can provide these stimuli.

Reminiscing is recalling and/or sharing happy past memories and experiences. Studies have found that reminiscing is very effective against loneliness and depression.

Ruby Cemental says in her article *'9 Reasons Why Reminiscing Can Benefit Seniors'* that reminiscing has many positive effects on older people. She lists 9 different benefits of reminiscing

including improved quality of life, reduced depression, eliminating boredom, improved communication skills, etc.

Leacey Brown, in her article *'Importance of Reminiscing',* states that the ability to recall and reflect helps older adults remember who they used to be in order to help them define their identity in the current moment. The stories of the past provide a source of affirmation, hope, and belief that their legacy will be preserved.

The authors of *'From the Mouths of the Elderly: What can their Life Experience Teach us?'* put a different view to reminiscing. They state how beneficial those experiences from older people can be to the newer generations. We can learn from their mistakes and inspire from their success.

Existing System:

1. Words With Friends (free and paid versions for iOS and Android)
The Words With Friends app and Words With Friends 2 allows you to play a quick word game online with loved ones or new players anywhere in the world. The game itself is similar to Scrabble. Each player uses his or her own mobile device to take a turn building a word on the board. There's even a feature to

send messages to keep the game social.

2. Elevate Brain Training (free and paid versions for iOS and Android)

"As we age, each of us becomes concerned that our memory will start to cause problems in our everyday lives," says Dr. Ernest Brown, house call physician of Doctors to You.

Dr. Jerry Bauer of the Neurosciences Institute at Advocate Lutheran General Hospital asserts that in order to "maintain active and strong nerve connections in the brain and improve how they communicate with each other," we must remain active.

Exercising this complex network of neurons in your brain can increase memory function and could potentially keep dementia at bay.

The Elevate app uses math, memory, and word games to improve various skills such as reading comprehension, listening, writing and speaking.

3. Lumosity (available for iOS and Android)

The Lumosity uses challenging puzzles and brain teasers to keep you sharp. According to Lumosity's Director of Communications, "Lumosity is based on the science of neuroplasticity, the idea that the brain can change and reorganize itself given the right kinds of challenges." With both free and paid versions for Lumosity iOS and Android, seniors can use this app to focus on improving skills, such as memory, attention, speed, flexibility and problem-solving.

4. NPR (free for iOS and Android)

When you're out and about enjoying fun activities, you may miss your favorite news program or not have time to read the newspaper. The NPR app gives you instant access to all of the great content on NPR's website. Whether you want to catch up on reading the News section or see what's happening in the Arts & Life and Music sections, this app makes it easy.

And NPR isn't alone. USA Today, The Wall Street Journal and many other news outlets have native apps for you to download to your device. Or if you prefer to get aggregated news from a single source, consider Paper by Facebook, Yahoo News, or Flipboard.

5. Apple Books and Kindle (available for iOS and Android)

If you're a voracious reader but find lugging heavy tomes around burdensome,

it's easy to get unlimited books right on your device. For Apple users, Apple Books offers digital texts and audiobooks on your iPhone, iPad, iPod touch, or Apple Watch. If you are an Android user, the Kindle app allows you to browse millions of books from the comfort of your own home.

6. Librivox Audio Books (available for iOS)

Librivox is a library full of audiobooks. If reading traditional books has become challenging for you, but you still want to be swept away in storytelling, this app offers over 50,000 audiobooks to choose from.

7. Old Time Radio 24 (available for iOS)

Do you miss the old tunes and radio shows of yesteryear? This app offers 35 stations of music and radio plays from the 1920s all the way through the 1970s. No matter what era you're looking for, this app likely has the sounds of your younger years. The app can run in the background of your device so you can still use it to send messages and surf the web while listening.

Proposed System:

Taking all the problems into consideration, we are proposing a mobile application which will aid the elderly people.

The system we are proposing, is an android based mobile application. The development will be done using Kotlin in Android Studios.

Firstly, most of these people face problem while reading on screens. Thus, we propose a ML based voice assistant which will help them operate the application as well as interact with other applications and the internet as well. With this as the basic functionality, the application will also provide many other features.

The most interesting of them, is a story/experience sharing portal. Here, the user can tell, read or listen to various memories and stories of people with similar mindset and age group. This will give the elders a new work, a new purpose and a new medium of entertainment. Also, this will help them in reminiscing. By using the person's credentials and frequent choice of stories, a predictive algorithm will suggest them new stories. These stories will be stored in an external cloud based storage unit, and information and path will be given in the database.

Another feature would be reminders for medications. They or their family members can set the reminders so that they would never miss any medicine. Also, the user can use this feature to set reminders for other things as well. For example, a TV show they like to watch.

A joke portal will be provided, where jokes relatable to this specific age group can be shared by the users themselves. They can record audio of a joke they know, or provide link of other social media posts or simply copy past the joke content.

As the time proceeds, during the development, more features can be ideated and implemented.

A basic prototype of some of the screens to be included I the application is given below.
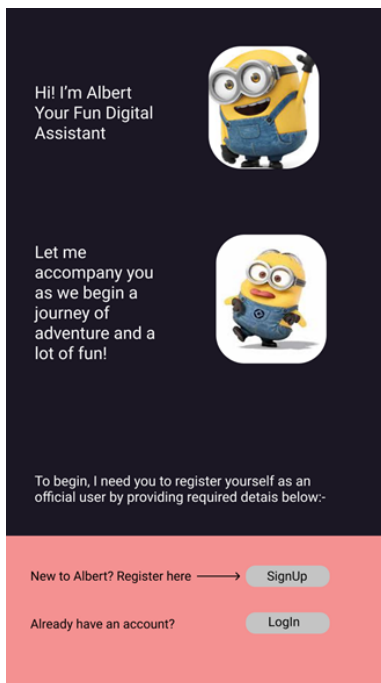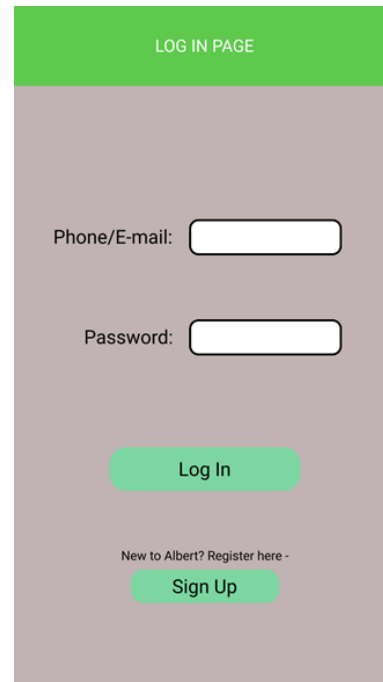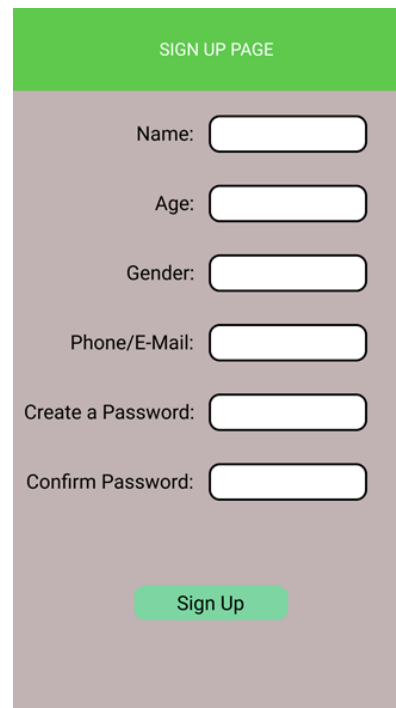

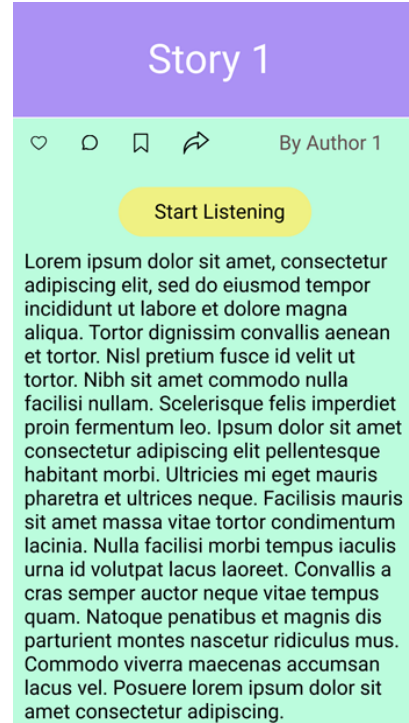Figure 1 landing page

Figure 2log in page

Figure 3sign up page
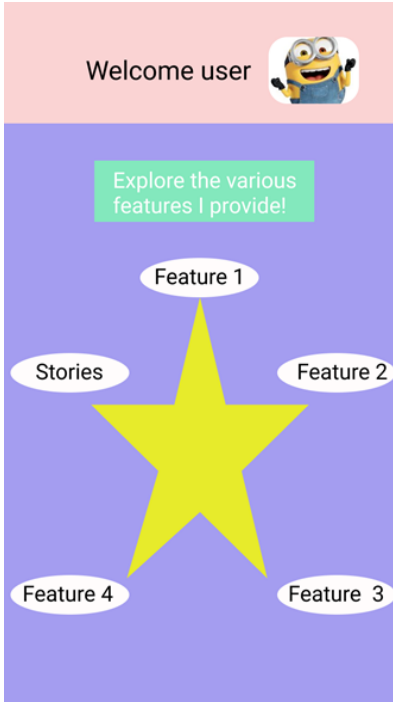
Figure 4 Home page

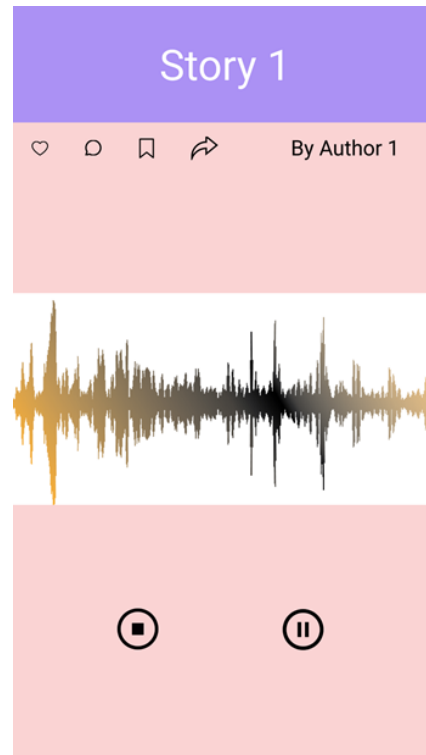Figure 6 Read a story

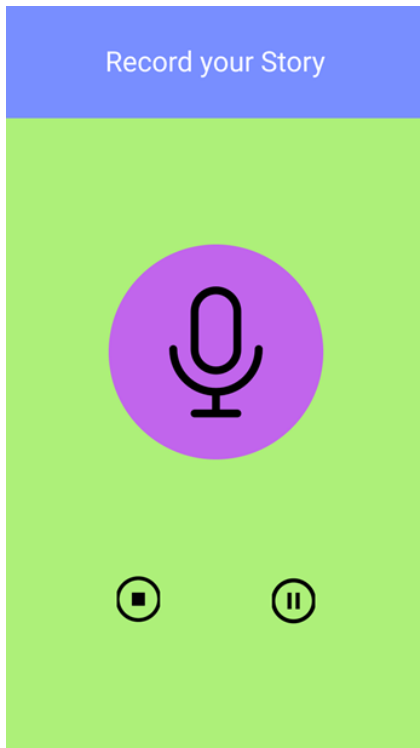Figure 5 Stories home

Figure 7 Listen to Story

Figure 8 Record a story

Results and Conclusion:

This paper reviewed papers and articles about mental heakth of senior citizens. From this literature review, it was found that the main reason for damaged mental health, depression and dentia is loneliness and lack of socialization. Reminiscing, that is, recalling and/or sharing happy past memories and experiences, can help a lot to reduce the effects of loneliness.

Although it is advised that spending time with friends and family is best solution, it cannot be done in all the cases. For such a cases we need a different medium to achieve the same goal.

Considering weakened eye-sight, a solution can be proposed to make a voice assistant and simplest user interface application.

To reduce the loneliness, the features provided like story sharing, recording own experiences and sharing them with people of similar age groups and hearing and/or reading others' experiences can help.

References:

[1] Sarah Abdi, Alice Spann, Jacinta Borilovic, Luc de Witte & Mark Hawley "Understanding the care and support needs of older people: a scoping review and categorisation using the WHO international classification of functioning, disability and health framework (ICF)"

[2] "One is the Loneliest Number: Combating Senior Isolation"

[3] "Depression is Not a Normal Part of Growing Older"

[4] Rob Buck "What Primary Psychological Needs Do Aging Adults Have?"

[5] Leacey Brown "The Importance of Reminiscing"

[6] Ruby Cemental "9 Reasons Why Reminiscing Can Benefit Seniors"

[7] "Understanding the care and support needs of older people"

[8] "What Primary Psychological Needs Do Aging Adults Have?"

[9] "From the Mouths of the Elderly"

[10]
https://www.agespace.org/top-10-useful-apps-help-elderly