7th International Conference on Communication, Computing and Virtualization 2016

Android Based Assistive Toolkit For Alzheimer

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Abstract

The aim of the paper is building an application that could ease the everyday life of a person affected by Alzheimer's disease. This application provides various functionalities such as tracking movements of the patient through GPS, providing medicine and food timing notifications, daily routine tracker and quiz to increase cognitive functioning of the patient. The main objective of this project is to make people suffering from Alzheimer's as independent as possible. So this project is not only about creating an application but also address the problem of increased dependency of Alzheimer patients on caregivers.

Keywords: Android; Location tracking GPS; Alzheimer's.

1. Introduction

In 2010, there are 3.7 million Indians with dementia and the total societal cost is about 14,700 crores. While the numbers are expected to double by 2030, costs would increase three times. While in 2010, there were between 21 and 35 million people worldwide with AD. It most often begins in people over 65 years of age, although 4% to 5% of cases are early-onset Alzheimer's which begin before this. It affects about 6% of people 65 years and older. In 2010, dementia resulted in about 486,000 deaths. Alzheimer's disease (AD), also known as Alzheimer disease, or just Alzheimer's, accounts for 60% to 70% of cases of dementia. It is a chronic neurodegenerative disease that usually starts slowly and gets worse over time. The most common early symptom is difficulty in remembering recent events (short-term memory loss) [1].

As we can see Alzheimer patients have short term memory so they face some common problems like wandering off, forget to have food, forget faces/names of family members are the most common one. To solve all this problem

Alzheimer patient's have a caretaker with them, who takes care of them and help them in day to day chores.

What if there is an application which will take care of the patient instead of the real care-taker, which helps the patient to remember faces/names of family members, gives reminder to have medicine, helps them to follow full schedule, etc. It also helps the patients to estimate his/ her progress by progress report which will be generated by playing games. Solving problem games which will help him/her to stimulate brain functioning. The purpose of this project is to make patients independent as much as possible.

2. Literature Survey

It affects memory. Alzheimer's disease (AD) is the most popular dementia in elderly people worldwide. Its expectation is 1 in 85 people will be affected by 2050 and the number of affected people is double in the next 20 years [2].

There are 3 phases of AD: A) Early stage B) Moderate stage C) Severe stage

A)Early stage: - In the early stages of Alzheimer's, a person may function independently. He or she may still drive, work and be part of social activities. Despite this, the person may feel as if he or she is having memory lapses, such as forgetting familiar words or the location of everyday objects.

Common difficulties include:

- Memory loss that disrupts daily life.
- Challenges in planning or solving problems.
- Confusion with time or place.
- Decreased or poor judgment.

B) Moderate stage: - Moderate Alzheimer's is typically the longest stage and can last for many years. As the disease progresses, the person with Alzheimer's will require a greater level of care.

Common difficulties include:

- Forgetfulness of events or about one's own personal history.
- Confusion about where they are or what day it is.
- Changes in sleep patterns, such as sleeping during the day and becoming restless at night.
- An increased risk of wandering and becoming lost.

C) Severe stage: - In the final stage of this disease, individuals lose the ability to respond to their environment, to carry on a conversation and, eventually, to control movement. They may still say words or phrases, but communicating pain becomes difficult. As memory and cognitive skills continue to worsen, personality changes may take place and individuals need extensive help with daily activities [3].

Common difficulties include:

- Require full-time, around-the-clock assistance with daily personal care.
- Lose awareness of recent experiences as well as of their surroundings.
- Experience changes in physical abilities, including the ability to walk, sit and, eventually, swallow.
- Have increasing difficulty communicating.

Assistive technology refers to devices or systems that support a person to maintain or improve their independence, safety and wellbeing. Many assistive technology devices are electronic, but the term does not just refer to high-tech devices. However, devices such as smartphones and tablets, coupled with widespread internet coverage, are making technology more accessible for everyone in ways that we couldn't predict just a few years ago. Technologies and 'apps' (applications or programs for smartphones and tablets) that have been developed for the general public are increasingly being used by people with dementia as well. Over time these mainstream technologies will probably replace many of the products that were developed specifically for people with Alzheimer disease [4].

Technology can be used in a variety of ways, and for a variety of purposes. It can support people in carrying out everyday tasks and activities, enhance a person's safety, support their social participation, and monitor their health.