CARE BRIDGE:AN IOT ENABLED SMART HEALTH CARE PLATFORM FOR ELDERLY SAFETY AND ASSISTANCE

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Abstract

More people are getting sick with long term health issues.This is a problem.The Senior Citizen Health Care Platform is a way to help people using technology so they can have a life and we can make things easier for healthcare workers.This project is, about making a Senior Citizen Health Care Platform that helps people when they need it.The Senior Citizen Health Care Platform will send emergency alerts. Let people call for help with their voice and use the internet to talk to people.The system will send messages. Make phone calls to remind people about doctor appointments and medicine.The Senior Citizen Health Care Platform will also let people talk to doctors over video.This will help people get help when they need it and stay in touch with their families.The Senior Citizen Health Care Platform is an idea because it uses new technology to help older people.For example it lets them get help from away and uses computers to keep them healthy.The Senior Citizen Health Care Platform is a way to take care of senior citizens because it is easy to make bigger if we need to.The Senior Citizen Health Care Platform can help a lot of people.The Senior Citizen Health Care Platform is a way to use technology to help people.

Keywords: Senior healthcare, Elderly safety, Emergency alerts, Voice-based SOS, Fall detection, Accelerometer, SMS notification, Voice call support, Medical reminders, Video communication, Family care, Caregiver support, Smart healthcare system, PHP, Twilio API.

Introduction

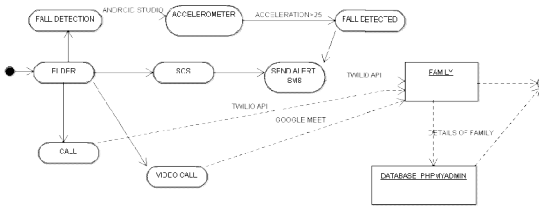
The safety and well-being of people is a big concern these days. As more and more elderly people are living alone they need help with things like emergencies taking their medication and staying in touch with their family or caregivers. The old way of doing things with devices is not working well for people. Elderly people have a time using these devices.

Elderly people are more likely to have accidents like falling or sudden health problems. If they do not get help away it can be very bad for elderly people. Falling

down is one of the reasons elderly people get hurt. If nobody helps people it can cause a lot of pain for them. Forgetting to take their medication or missing doctors appointments can also hurt the health of people. Many elderly people also feel lonely which is why it is so important for elderly people to be able to talk to their family and caregivers.

To solve these problems we can use technology to create a healthcare system for people. This system will focus on helping people in emergencies and with their daily needs rather than just monitoring them all the time. The system we are proposing will allow elderly people to get help away in an emergency. It will send messages. Make phone calls to their family and caregivers so elderly people can get help quickly from their loved ones.

One of the features of this system is that elderly people can get help by talking to the system. They can say something like "Help me" to the system. The system will send an alert to their family and caregivers. This is very helpful if elderly people are unable to move or use a device. The system can also tell if someone has fallen down and it will send an alert automatically to their family and caregivers.



The system will also remind people to take their medication go to doctors appointments and stay healthy. Elderly people will be able to talk to their family, caregivers or doctors using video calls. This will help elderly people feel less lonely and more connected to their loved ones like their family and caregivers.

The main goal of this project is to create a healthcare system for people. We are using technologies like PHP, phpMyAdmin and Twilio API to make this system for people. We want to create a system that's easy to use and combines emergency help, reminders and communication all in one place for elderly people.

This study is looking at how we can use technology to improve the care of people. We want to show that our system helps people at a low cost. It is also easy to grow and provides support.

Our project aims to make elders more independent.It helps them to stay safe.At the time we are helping their families take care of them.Our system is a solution that's cost-effective, for elderly people.It is scalable and supportive too.We want elderly people to live on their terms.They should feel safe and healthy.Their families should also find it easy to care for them.

Proposed System

The senior healthcare platform is a system that helps people. It gives them safety and emergency support when they need it. This system is also good for their health. It is different from systems that need to be watched all the time. The senior healthcare platform is easy to use and helps in emergencies. It also involves the family.

The senior healthcare platform has things. It can detect if someone has fallen down and sends an SOS alert. The senior healthcare platform also listens to voice commands. Sends reminders. All these things are part of the healthcare platform.

1. Elderly User Module and video

The elderly user is the person who gets help from the healthcare platform. The senior healthcare platform is good for people who live alone and need help when something bad happens. Users can talk to the healthcare platform in ways. They can press the SOS button. They can use voice commands. They can also get reminders from the healthcare platform. This makes it easy for everyone to use the healthcare platform even those who are not good with technology.[2]

2. Fall Detection using Accelerometer

The senior healthcare platform can detect if someone has fallen down. It uses a tool to do this. When it sees that someone has moved in a way that might be a fall the senior healthcare platform sends an emergency alert. This is very helpful if the user is hurt and cannot call for help.[6]

3. Emergency SOS Button

The senior healthcare platform has an SOS button. Elderly people can use this button when they feel sick and need help. When they press the button the senior healthcare platform quickly tells family members and caregivers.

4. Voice Command SOS Feature

The senior healthcare platform allows elderly users to send an emergency alert with their voice. They can say things like "Help me" to get help from the healthcare platform. This is very useful when the user cannot move or press buttons.

5. SMS Alert System

When the senior healthcare platform sees that something is wrong it sends SMS alerts to family members and caregivers. The SMS has details so that contacts can help quickly. The senior healthcare platform uses SMS because it works on phones and can be sent when the internet is slow.[4]

6. Voice Call Notification

The senior healthcare platform also makes automated voice calls to emergency contacts. Calls are better because they get attention faster than text messages. If family members miss the SMS the call notification from the healthcare platform helps them see that there is an emergency and respond quickly.

7. Family and Caregiver Support Module

Family members and caregivers are connected to the healthcare platform. They get alerts and calls from the user. This makes sure that care is personal and immediate.

8. Medical Reminder Alerts

The senior healthcare platform helps elderly users remember their healthcare routines. It sends reminders for things like taking medicine on time going to the doctor and exercising. This helps prevent missed medicine and promotes habits from the healthcare platform. The reminders can include:

* Taking medicine on time

* Going to the doctor

* Health checkups

* Drinking water

* Exercise schedules

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Methodology

1.Elder:The Elder is the person who uses the healthcare platform. This refers to the citizen who uses the system for safety healthcare support and communication. The platform is designed to be simple and easy to use so that elderly users can easily access its features. Through the application they can request help in emergency receive reminders make calls and stay connected with family members. The entire system is developed to improve their independence, confidence and quality of life for the Elder.

2.Fall Detection: The Fall Detection feature is one of the important safety components of the system for the Elder. Falls happen to people all the time. They can be really bad if someone does not get help away. Falls can cause injuries. When people fall they need help immediately. This ensures response and increases user safety especially when the Elder is unable to move after an accident.

3.Accelerometer: The Accelerometer is the sensor that detects movement and acceleration changes in the Elders device. It helps the system monitor motion patterns. Identify unusual activities such as sudden impacts or rapid falls by the Elder. By analyzing the sensor values the platform can determine whether the movement is normal or dangerous for the Elder. This sensor-based approach makes the system smarter and more reliable for emergency detection.

4.SOS Emergency Feature:The SOS feature allows the Elder to manually request help during emergencies. If the Elder feels sick, unsafe or needs support they can press the SOS button in the application. Once activated the system immediately sends notifications to family members or caregivers for the Elder. This feature is especially useful in situations where the Elder's conscious but requires immediate assistance. It provides an quick method to ask for help.

5.Send Alert SMS: The Send Alert SMS module is responsible for delivering emergency text messages to registered family members of the Elder. When a fall is detected or the SOS feature is activated the system sends an SMS alert instantly to family members of the Elder. The message informs family members that the Elder may need assistance. SMS alerts are highly effective because they work on all mobile phones and can be received quickly even with limited internet access.

6.Call Feature: The Call feature enables voice communication between the Elder and family members or caregivers. In emergencies a phone call can often grab attention faster than a text message for the Elder. It also allows family members to immediately understand the Elders condition and provide guidance until help arrives. Apart from emergencies the calling feature can be used for communication and emotional support for the Elder.

7.Video Call: The Video Call feature provides face-to-face communication between the family members, doctors or caregivers. It helps reduce loneliness and keeps the Elder connected. Family members can visually check the condition of the Elder while doctors can use it for remote consultations. This feature adds both healthcare value to the platform for the Elder.

8.Database(phpMyAdmin): The Database is used to store and manage all important system information for the Elder. This includes user profiles, family contact details, reminder schedules, alert history

and communication records of the Elder. PhpMyAdmin helps organize the data efficiently. Allows easy retrieval whenever needed. A proper database ensures smooth system operation, reliability and future scalability for the Elder.

9.Twilio API: The Twilio API is the communication service used to send SMS alerts and make automated phone calls, for the Elder. It connects the healthcare platform with mobile networks allowing emergency notifications to reach family members instantly for the Elder.

Challenges:

1. Accurate Fall Detection: The system needs to know when someone has really fallen. It should not send alerts for things that're not emergencies.The Fall Detection system has to figure out what is a fall. What is not. It has to know the difference between a fall and other things like sitting or dropping something. These things can look like a fall to the Fall Detection system.The Fall Detection system is very important for people who have had a fall. It helps them when they need it most. The Fall Detection system is really good, at helping people who have fallen down.

2. Reliable Voice Recognition: The voice SOS feature uses speech recognition, which can be tough to use when the Fall Detection system and voice SOS feature need to work together to help people who have fallen. The voice SOS feature needs Reliable Voice Recognition to work so that it can get help when it is needed for users who may have voices that are hard to understand or have accents.The system needs an internet connection to work properly.

3.Easy Design for People: Many elderly people are not good with technology. So we need to make the interface simple. The interface should have buttons and clear text. It should be easy to navigate. This way older people can use the Fall Detection system easily.We need to make sure the system is simple. Older people should get help when they need it. They should use the Fall Detection system with ease.

Conclusion:

The Senior Citizen Health Care Platform helps people by providing a simpleand easy to use solution for their safety and health needs. This platform offersfeatures like emergency alertsthrough SMS and voice calls. It also hasan SOS button that can be activated byvoice, which helps in getting helpduringemergencies.The platform sends reminders formedication. Allows video calls.This helps old people manage their healthand feel connected to their loved ones.The Senior Citizen Health Care Platform is a cost- solution. It does notrequire hardware. It usesweb and cloud-based technologies.This makes it easy to use and accessible to people.

Future work:

Future enhancements may include: Integration of IOT sensorsto detect health patterns like heart monitoring,sleep cycle also it can include AI based health analytics to improve patient health.

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