

Purpose

Smart Assisted Living aims to solve a challenging issue; the balance between the autonomy of a patient and ensuring that adequate health care is provided to them with an appropriate amount of health and safety monitoring.

Our goal in this design is to provide health care providers with the means to track their patients' health without making the patient feel as though their independence or privacy has been violated.

Background

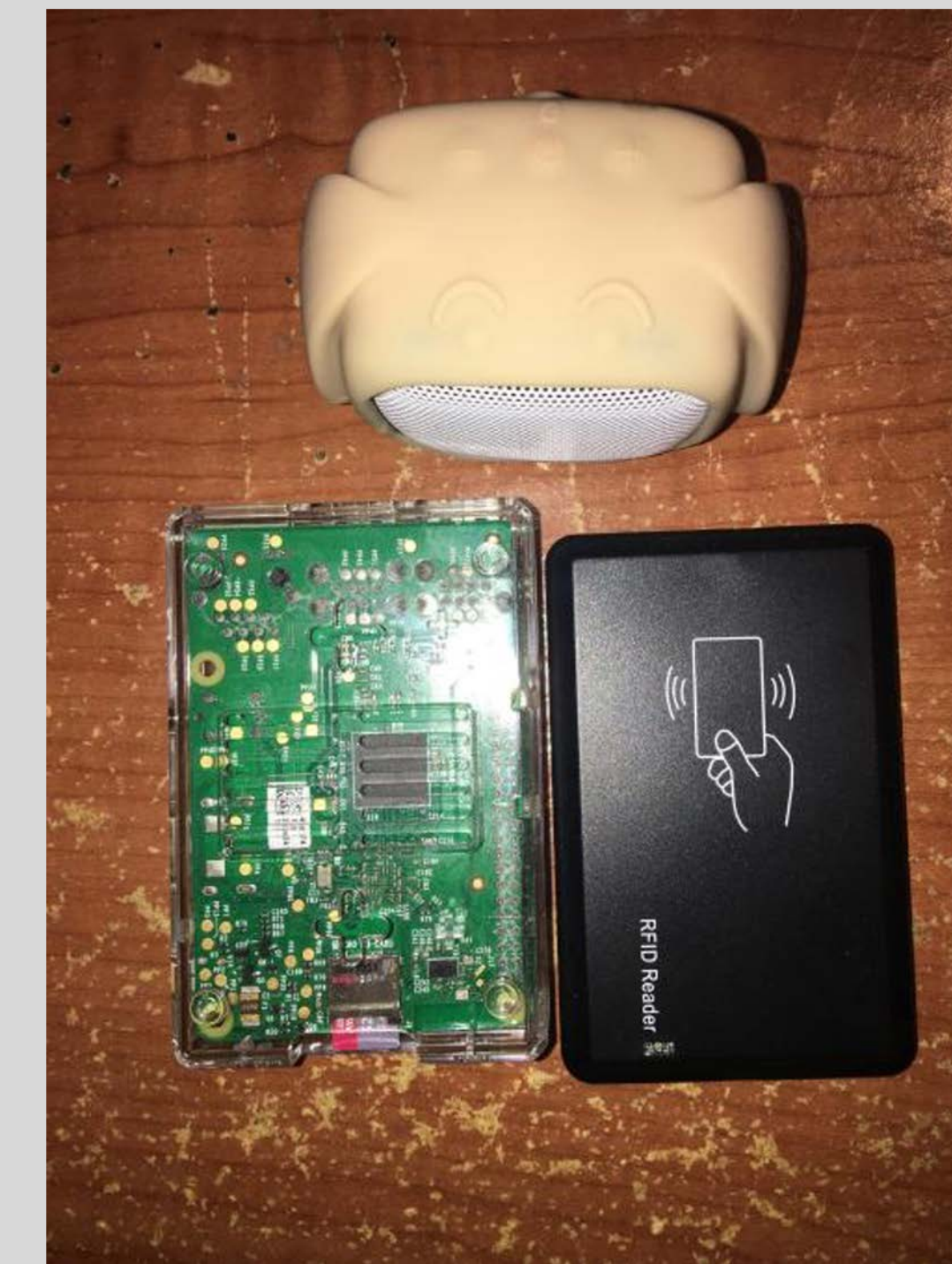
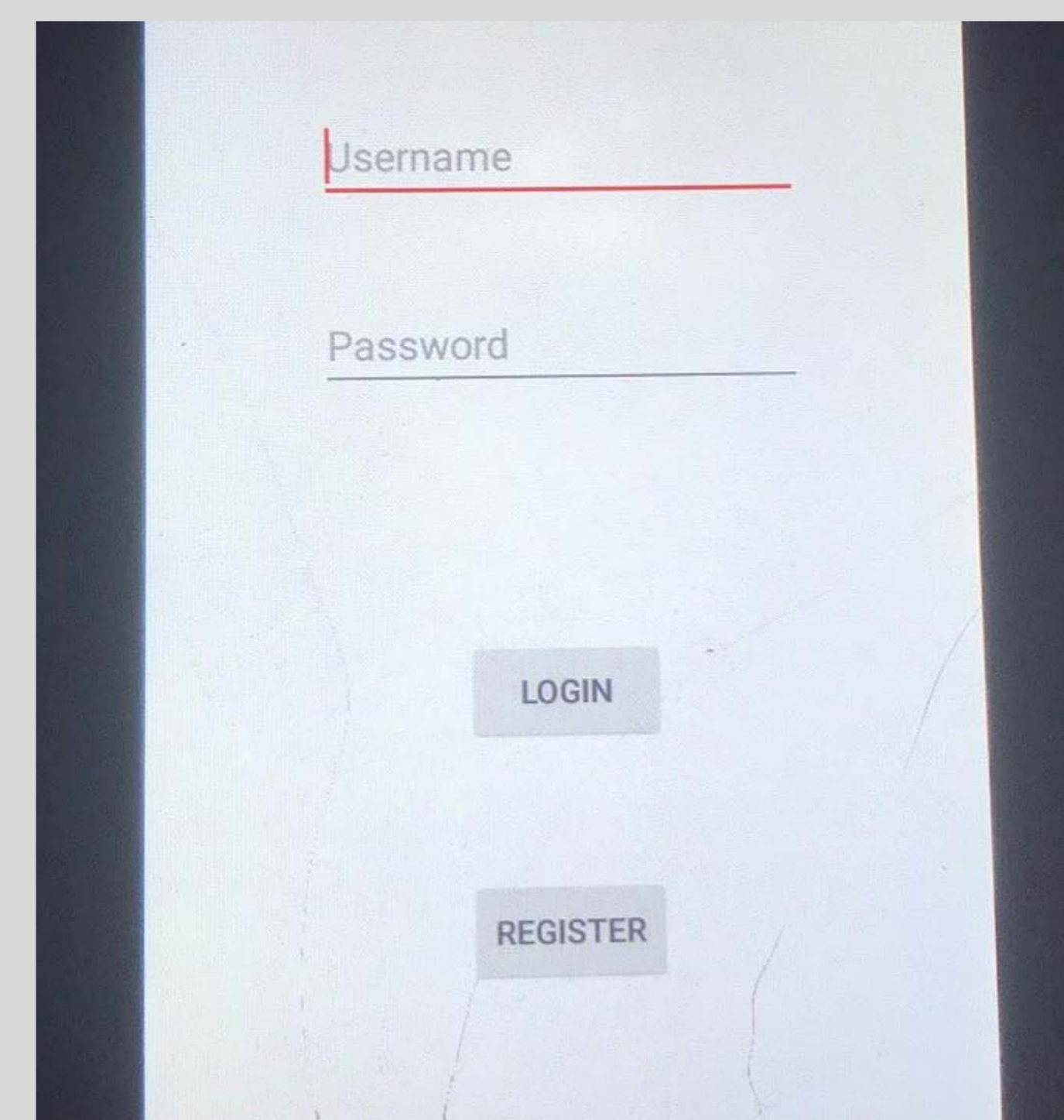
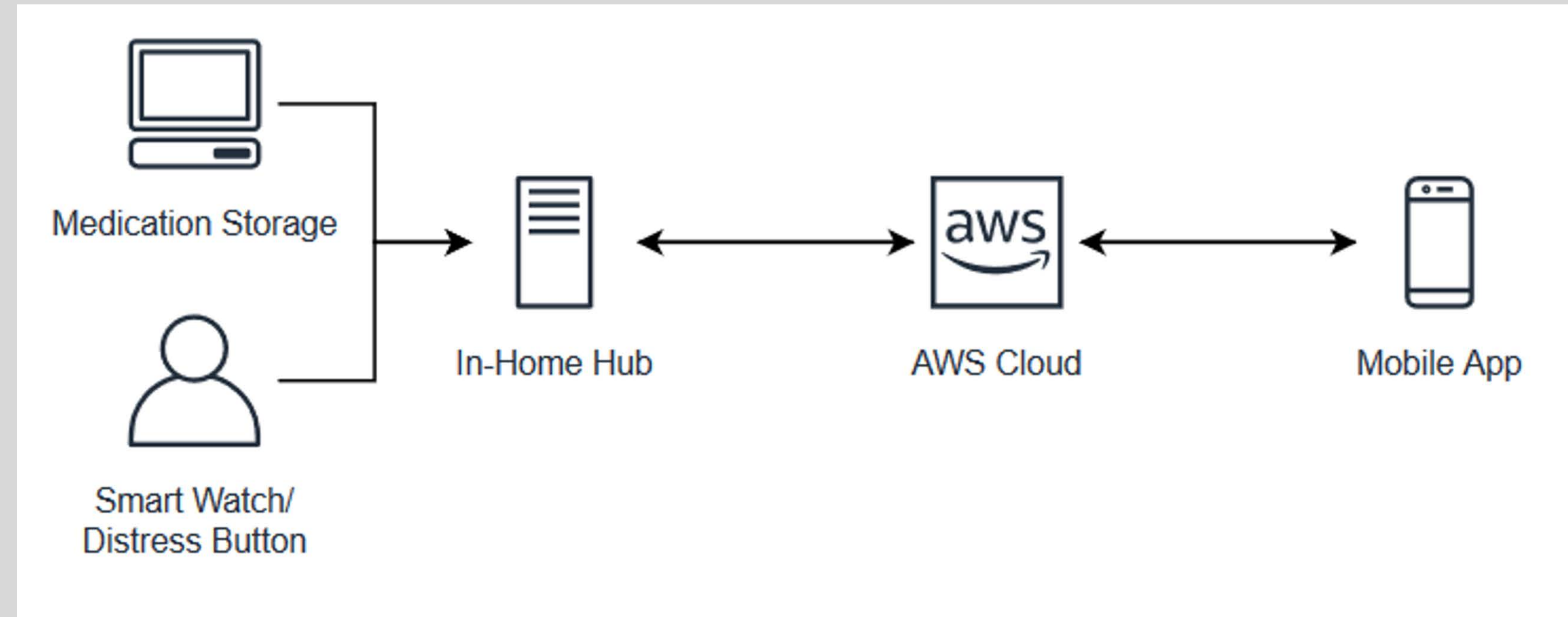
Assisted living is a form of in-home healthcare in which a patient who is mostly self-sufficient needs increased access to a medical professional without needing full-time care. It is intended to serve older patients who do not currently need to be in a nursing home.

Proposed Solution

Wearable and smart technology has a unique potential in this area, in that it provides a healthcare provider a way to receive frequent updates and important information regarding patients while reducing the frequency of needed in-person meetings for checkups and offering detailed information regarding the patient's activities.

This allows the patient an increased level of freedom while enhancing quality of care.

System Diagrams / Illustrations



Implementation

Medicine Container

The medicine container will monitor what time the patient takes the pills from the container. The container will also allow the health professional to set reminder times for the patient and alert the patient if they missed a dose.

Central Hub

The central hub will send regularly timed vital reports to a database on a cloud server, and when one of the sensors detects a medical emergency, the central hub will initiate an alert to the patient's emergency contact or to emergency services and notify the patients' health provider.

Mobile Application

Finally, we will design an Android Studio app for the health care provider to access and view all of the data stored for their respective clients, and to receive notifications on their mobile device regarding patient emergencies, patient visits or appointments, or other relevant health issues that the client would like to track.

Results

Upon completion and integration of the design, data is able to be moved between the mobile app, hub, medicine storage, and cloud in real-time providing immediate access to data. The hub is able to successfully generate notifications on the mobile app through the use of Firebase Cloud Messaging, as well as generate SMS texts to designated emergency contacts. Providers and patients are able to log medicine usage by scanning RFID tags on the medicine storage, which alerts the patient if a medication is past due. The mobile app provides a great deal of information and control to both the patient and the healthcare provider.

Conclusion / Acknowledgements

Conclusion

Our Smart Home Assisted Living lives up to its functionalities as an easier method of ensuring that managing health care between a doctor and a patient.

Acknowledgements

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