

Slide 1 – Intro

Speaker Script:

Good morning everyone. Today we will be presenting the paper titled 'We-Care: An IoT-Based Health Care System for Elderly People'. Our group consists of three members, and together we will explain the system, its architecture, hardware, software, and evaluation results.

Slide 2 – Motivation & Problem

Speaker Script:

As the world's elderly population rapidly increases, many older adults live alone and face higher risks during emergencies. The lack of continuous monitoring can delay medical response, especially in rural areas. The Internet of Things enables real-time monitoring, early warnings, and remote tracking — making it ideal for elderly care.

Slide 3 – What is We-Care?

Speaker Script:

We-Care is an IoT-based wearable system designed to continuously monitor elderly people. It includes a wristband called We-Watch which tracks temperature, detects falls, and sends emergency alerts. The system works fully locally and also through cloud connectivity, allowing caretakers to monitor from anywhere.

Slide 4 – Architecture Diagram

Speaker Script:

This diagram shows the full architecture of the We-Care system. We-Watch wristbands communicate through a low-power 6LoWPAN network. Data passes through a gateway to the We-Care service board, which processes information and communicates with cloud services. This enables local and remote monitoring.

Slide 5 – Wristband Sensors

Speaker Script:

The We-Watch wristband includes several key sensors: body temperature, environmental temperature, accelerometer for fall detection, RSSI for distance/out-of-range monitoring, and a panic button for emergencies. These sensors help continuously track the elderly person's condition and movement.

Slide 6 – We-Care Board & Gateway

Speaker Script:

The We-Care board uses TI's CC3200 Wi-Fi SoC and runs TI-RTOS. It acts as a local webserver, stores logs, and manages alerts. The gateway device bridges 6LoWPAN to WiFi, allowing wristband data to reach the cloud. Together, they ensure reliable communication regardless of internet availability.

Slide 7 – Software Stack

Speaker Script:

This software stack shows how different layers work together. The wristband uses Contiki-OS for sensor reading and communication, while the We-Care board uses TI-RTOS for web services, cloud access, and database management. UDP communication ensures efficient low-power data transfer.

Slide 8 – Web Interface

Speaker Script:

The web interface displays real-time information such as body and environmental temperatures, fall detection alerts, and online/offline status. If the panic button is pressed, the caretaker receives an immediate visual and sound alert, making the system highly responsive during emergencies.

Slide 9 – Battery Life

Speaker Script:

The authors conducted energy measurements to estimate battery performance. Using a 240mAh coin cell battery, the wristband lasts about 306 hours — roughly 12 days. This extended battery life makes it practical for daily use by elderly individuals.

Slide 10 – Range

Speaker Script:

The system can operate up to 60 meters indoors. When a wristband goes out of range, both the gateway and wristband trigger alarm sounds. RSSI values are used to detect signal strength and estimate distance to the service board.

Slide 11 – Strengths

Speaker Script:

We-Care offers several strengths: it is low-cost, low-power, supports local and cloud monitoring, detects emergency situations instantly, and uses secure AES-128 encryption. These features make it a strong IoT solution for elderly safety.

Slide 12 – Future Work

Speaker Script:

The authors propose improvements such as adding more sensors like heart rate and blood pressure, enhancing scalability for more wristbands, and strengthening privacy/security using TrustZone-based methods for IoT devices.

Slide 13 – Conclusion

Speaker Script:

In conclusion, We-Care is a promising IoT solution for improving elderly safety. It provides continuous monitoring, fast alerts, and remote caretaker access. This system has the potential to significantly enhance independent living for elderly individuals.