



# IOT System Implementation for Remote Touch and Display for the Elderly and Disabled.

(ESVC Group)

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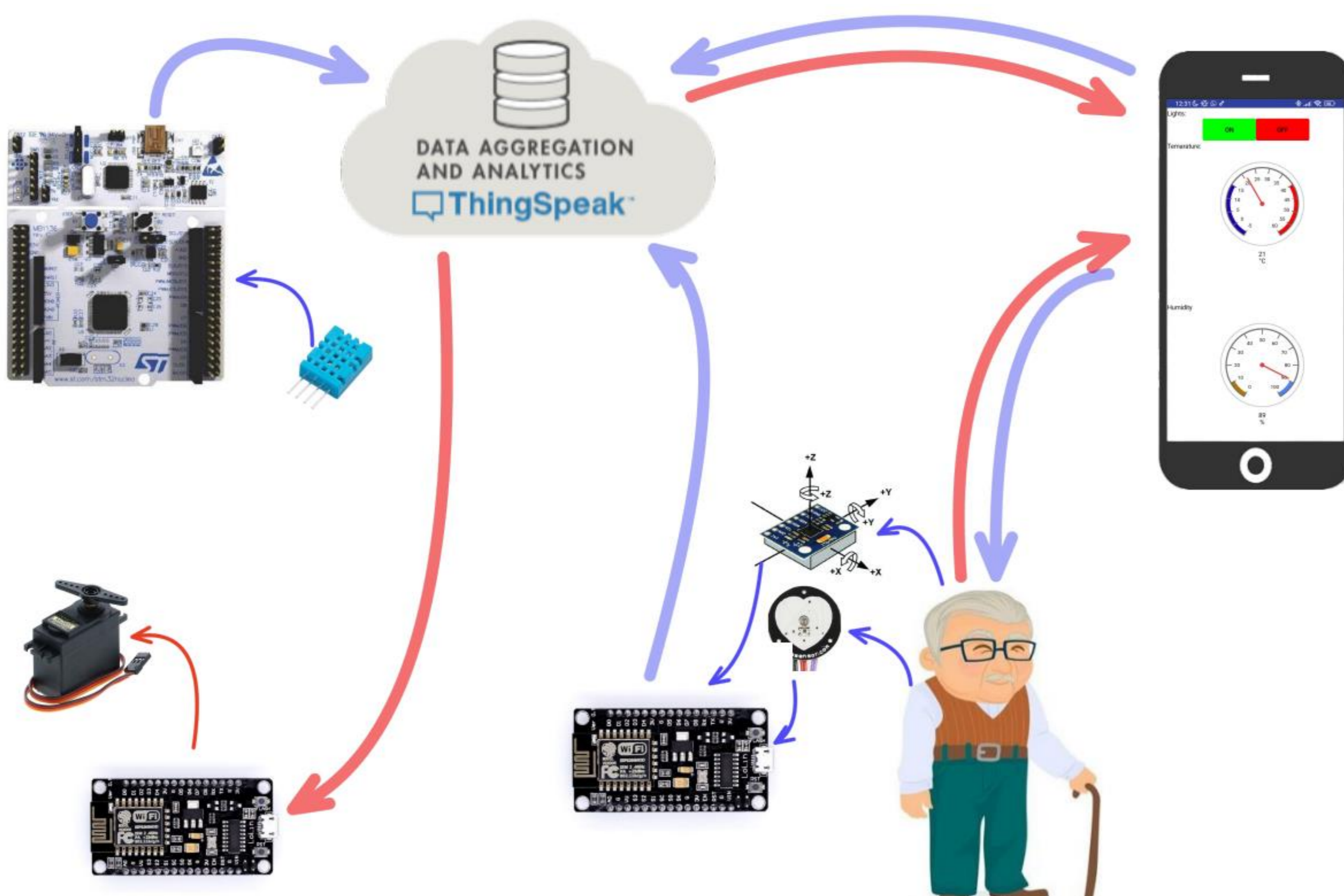
## Introduction

- ❖ This project aims to develop a remote monitoring and control system to help elderly individuals live comfortably and independently while giving their loved ones peace of mind.
- ❖ Our prototype focuses on environmental and health monitoring. By collecting and analyzing data from various sensors, the system provides insights into the living conditions and health status of the elderly. Family members and caregivers can access this information through a user-friendly mobile app, allowing them to monitor their loved ones' well-being and take necessary actions remotely.
- ❖ Additionally, the prototype includes a servo motor control feature, enabling remote operation of devices within the elderly individual's environment, such as lighting or temperature, via the mobile app.

## Application Areas

- ❖ Home Health Monitoring: Tracks vital signs and environmental conditions to ensure the elderly's health and safety
- ❖ Assisted Living Facilities: Enables caregivers to monitor multiple residents and manage living conditions efficiently.
- ❖ Chronic Disease Management: Offers continuous monitoring for seniors with chronic conditions, alerting caregivers to critical changes.
- ❖ Post-Hospitalization Care: Monitors patients after discharge to support a smooth recovery process.
- ❖ Smart Home Integration: Allows remote control of lighting, heating, and appliances for enhanced comfort and convenience.

## Solution Methodology



We have our elderly individual on the figure. Attached to the elderly person is an ESP module connected to a pulse sensor and a gyro sensor. The pulse sensor regularly sends the data it collects to the internet, while the gyro sends a signal to the internet if the elderly person falls. On the top left we have our STM32 board, which is connected to a temperature and humidity sensor that uploads environmental data to the internet. On the far right, you can see a representative image of our mobile application. Through this application, you can monitor both the environmental data and the elderly person's health data from anywhere in the world via the internet. Additionally, you can control the servo motor connected to the ESP on the bottom left through the mobile application.

Figure: An overall description of the project components

## Specifications and Design Requirements



Figure: Wristband



Figure: Armband



Figure: Prototype

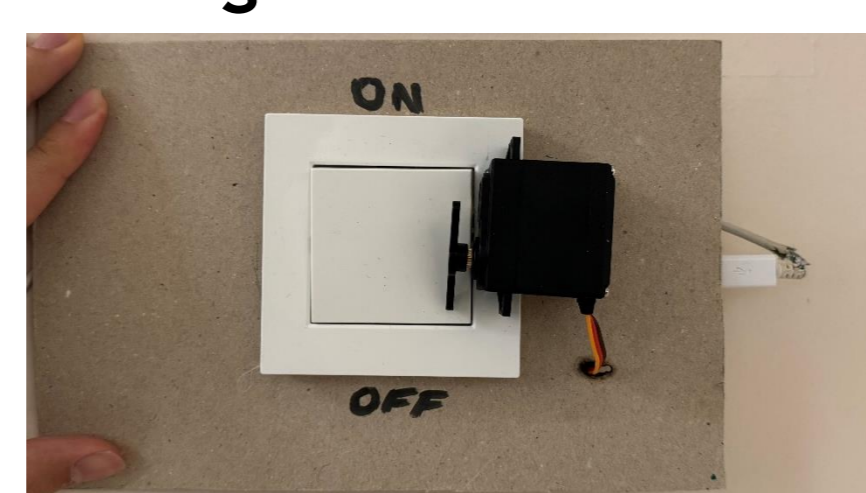


Figure: Servomotor control

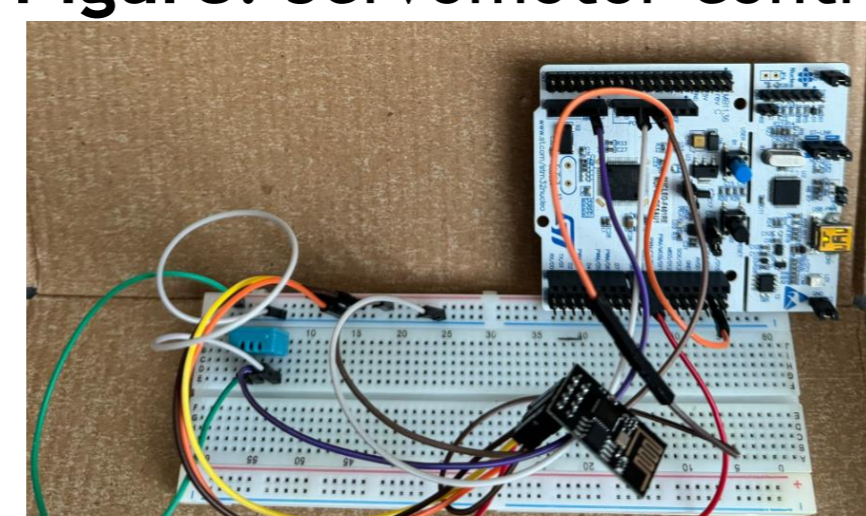


Figure: Temperature sensor

## Results and Discussion

### Achieved Specifications:

- ❖ Monitoring: Successfully collected and analyzed health and environmental data through sensors, accessible via a mobile app.
- ❖ Control: Enabled remote operation of devices like lighting and temperature through servo motors.

### Implications:

- ❖ Enhanced Care: Continuous monitoring and timely alerts improve elderly care.
- ❖ Independence: Remote control features increase the elderly's autonomy.
- ❖ Peace of Mind: Family members can monitor loved ones remotely, reducing anxiety.

### Future Work:

- ❖ Additional Sensors: Expand to monitor more health metrics.
- ❖ Predictive Analytics: Use machine learning for early issue detection.
- ❖ UI Enhancements: Improve mobile app usability.

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