

# Smart room monitor on the ESP32

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Course: Introduction to Robotics

## Design

The main purpose of the project was to use all of the components we had not used yet. The four main components are:

- ESP32 board – the brain of the project.
- 4-digit 7-segment display – used as a real-time clock to display the current time.
- 8-bit shift register – used for the above-mentioned display to reduce pin usage.
- DHT11 temperature and humidity sensor – used for monitoring the surroundings and turning on the relay module once the temperature gets high enough.
- Photoresistor with LED and a transistor – used to light up the board when it gets dark.

## Reflection

The most fun part of the project was setting up the web server and figuring out how the shift register and 7-segment display work. I decided to run the clock display on a separate thread because otherwise, the display appeared flickery. Overall, I am glad I used an ESP32 since it made the project more enjoyable.

## Tests

I tested this project in all the ways I could think of, and the only problem I found is listed below.

## Known Issues

After testing my project, the main problem is with the ESP32 website's relay control — it can get a little glitchy.