CircuitMess ESP-WROOM-32 Microcontroller User Guide

Chatter Anatomy Guide

Chatter's anatomy

Contents

Explore the board

Welcome to Chatter's anatomy guide!
Whether you have already assembled your Chatter or not, this is going to be a helpful guide where you'll learn a bit more about the soldered components, small connections, and drivers.
We'll start with bigger components and cover smaller components later in the guide.
**Exploring the board**
Starting with anything else but the PCB board itself would be wrong. Therefore, we present you the star of the night…
PCB stands for a printed circuit board. This fiberglass board has copper traces, protective paint, and insulating material.
Thanks to all the copper lead on the board, all the connected or soldered components can communicate with each other.
Without it, a buzzer wouldn't be able to vibrate once you receive a text message, the display wouldn't react after any input, and you wouldn't be able to write a message using the pushbuttons.
Just like with other Circuit Mess devices like Nibble or Spencer, we want our components not only to work wonders but to look cool as well! Therefore, we designed some pretty fun patterns that you can see on the back of the board.
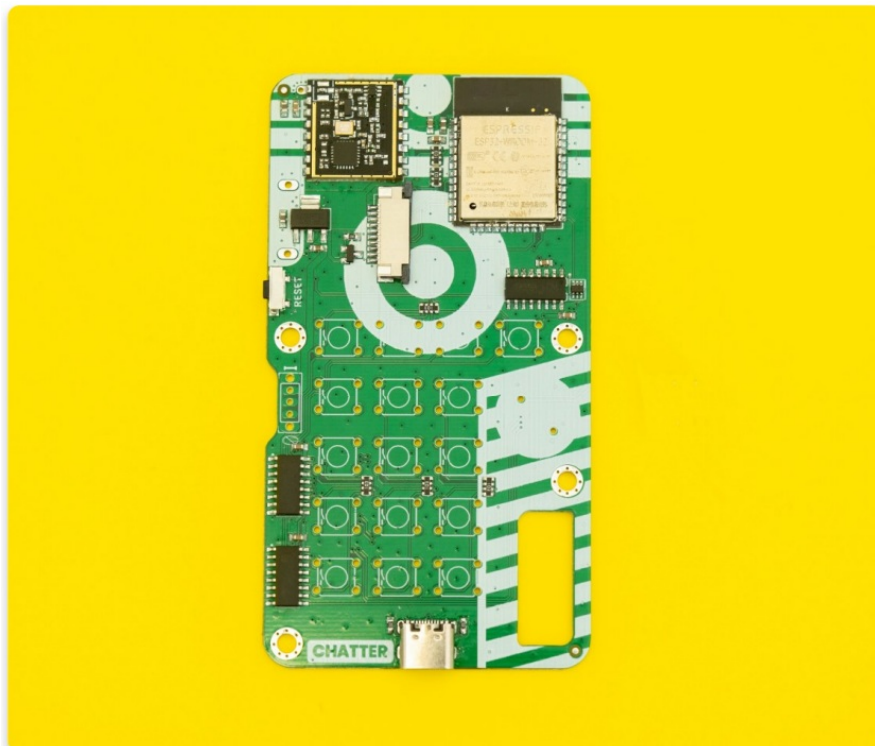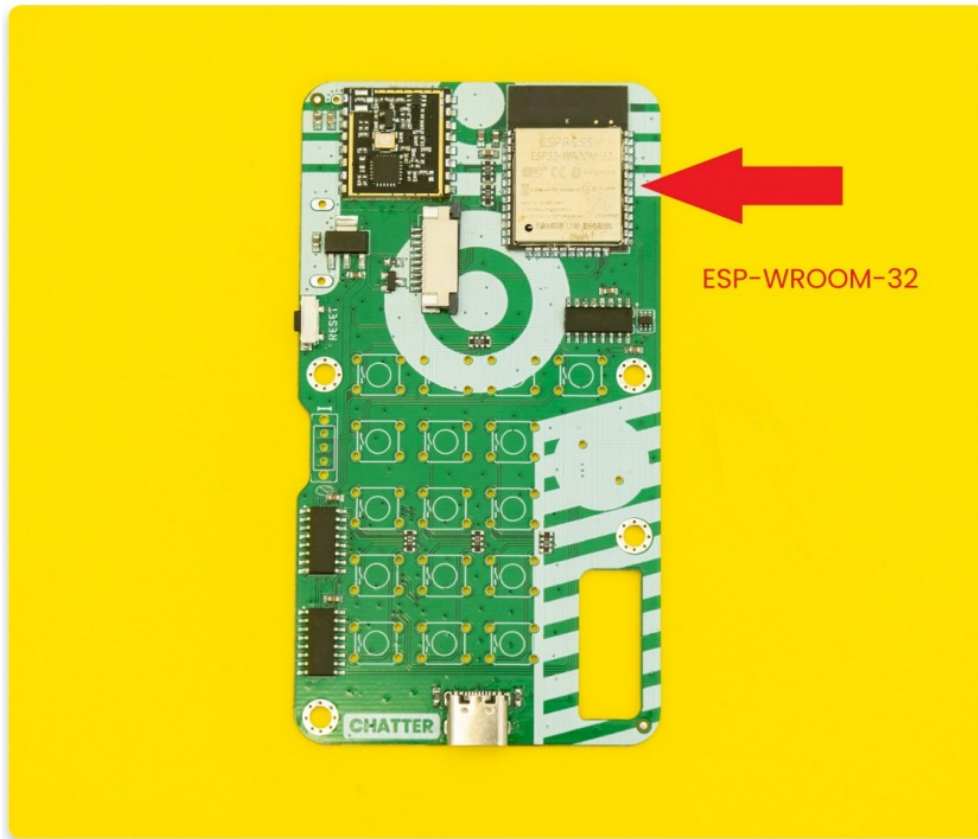

ESP-WROOM-32

This microcontroller runs everything, and you could say that this is Chatter's brain.
ESP-WROOM-32 is a powerful module mainly used for sound encoding and streaming music. It is reasonably

priced considering all its abilities.

Apart from being famous for sound encoding, ESP-WROOM-32 also controls pictures on the display and pushbuttons.
Due to its complexity and sensitivity, this module is already connected to Chatter's main board.
ESP-WROOM-32 data sheet

Reset button
This one's pretty self-explanatory – the reset button is used for resetting the whole device. You can find this useful in case something gets frozen (which is hopefully never) or if your Chatter turns off due to battery saving program.
USB-C connector
This connector on the top side of the board is used for charging and connecting Chatter to the computer. Once you connect it to your PC, you'll be able to program it in Circuit Blocks – a graphical programming interface that helps newbies get into embedded programming.
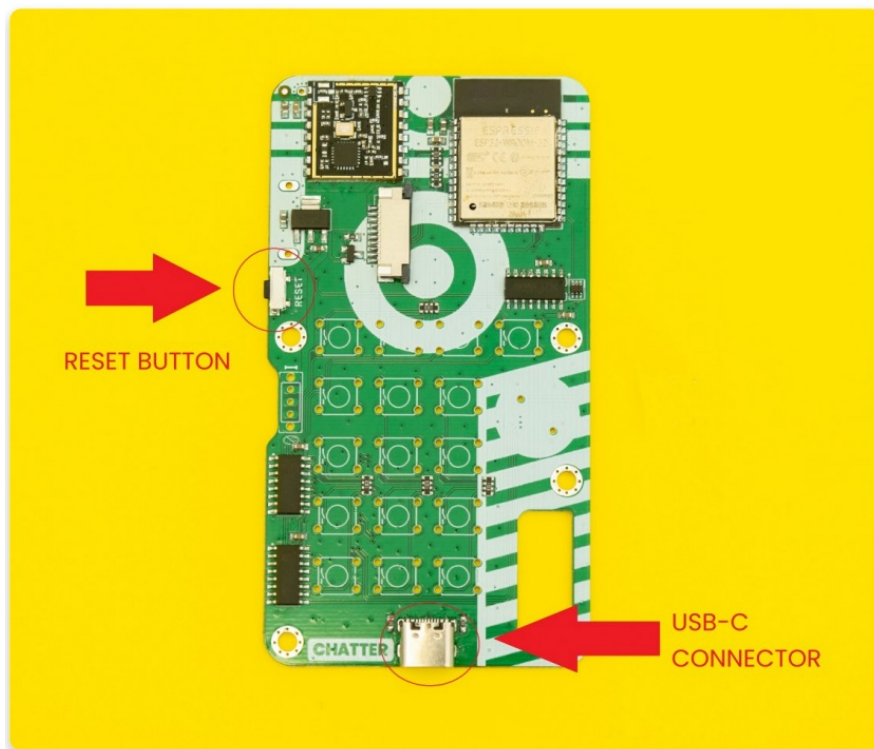
Display

Chatter's display is connected to its own small board that is soldered to the main board. There are no pins that need to be soldered (unlike on our other devices), but only a small orange tape that needs to be connected to the main board.

Don't worry! Guides that explain this step are quite simple, so we hope you'll actually enjoy the process of assembling the device together.

On this display, you'll be able to see text messages you'll receive, all the settings, and cool features that you'll be able to program in Circuit Blocks a bit later.
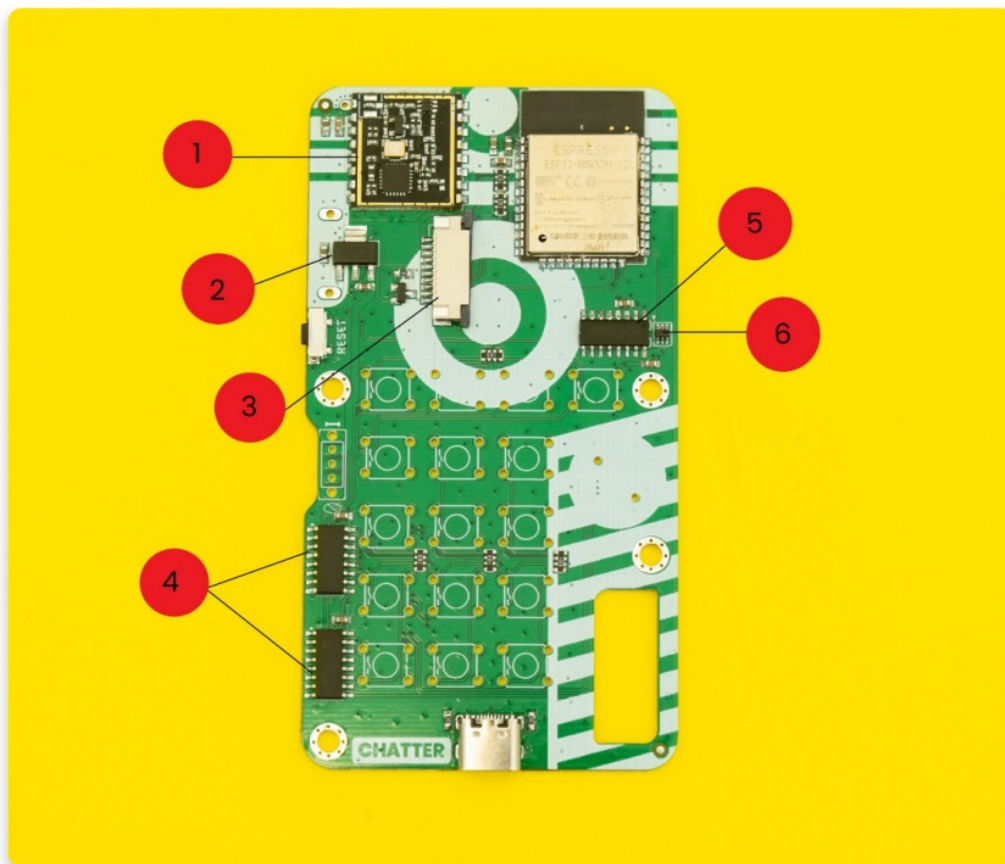

Buttons

These buttons allow you to navigate through Chatter's menu, write and send messages, and so much more!

Explore the chips

1. **Lora module**

   Lora is a wireless technology that offers long range, low-power, and secure data transmission.

2. **Chip SE5120ST33-HF**

   This chip will make sure the energy from the batteries comes to the main board and run the Chatter.

3. **FC5 connector**

   You'll use this connector to connect the display to the mainboard.

4. **Chip 74HC165**

   These chips will make sure you can write text messages and scroll through the menu using pushbuttons.

5. **Chip CH340C**

   Thanks to this little guy, Chatter can communicate with your computer over USB!

6. **Chip UMH3NFHATN**

   This chip allows Chatter to switch between Run Mode and programming mode!

Capacitors and resistors
The rest of the small components are called capacitors and resistors. These are the main parts of pretty much every electronic device in the world. They are used to control the flow of the current in a circle.
There are a few locations on the board where these components are located, mainly around the ESP-WROOM-32 module, the display, and the important chips.
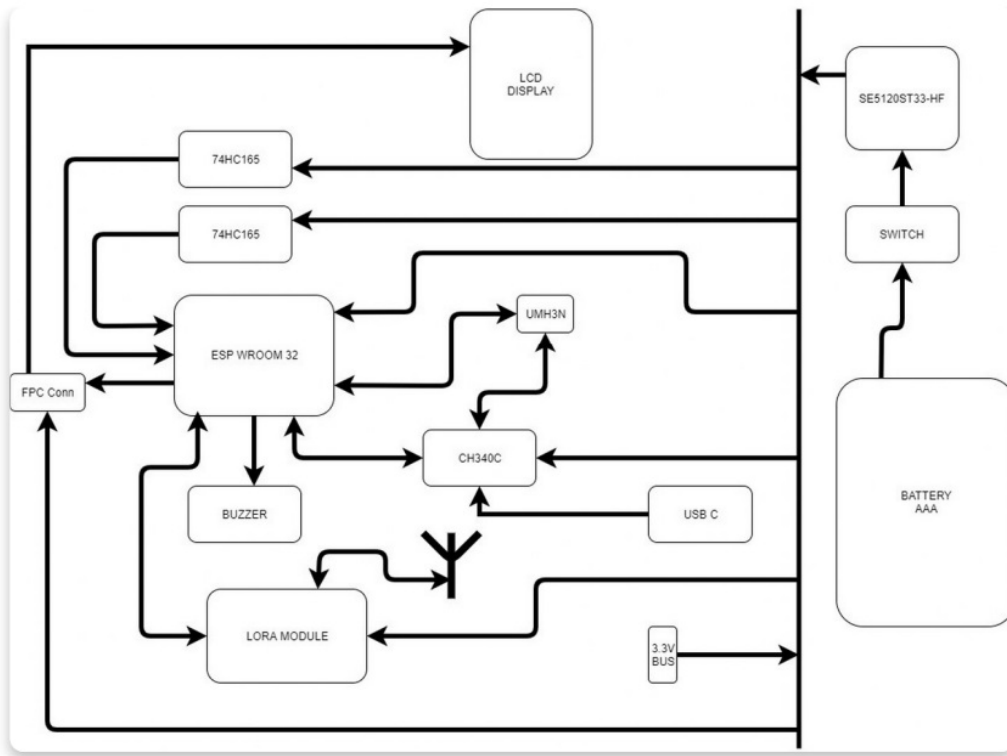
Blocks… and more blocks

Chatter's block diagram

This is Chatter's block diagram.
Take a look at the scheme below and feel free to investigate in detail.
It shows how the components like EPS-WROOM-32, display, buzzer, and pushbuttons are connected. It also explains how different inputs are accepted and processed by different drivers and how they affect the outputs.

Now that you know what each component on the mainboard is, you're ready to build your Chatters Check out the **Chatter build guide** here: **Chatter build guide**

Documents / Resources

	CircuitMess ESP-WROOM-32 Microcontroller [pdf] User Guide ESP-WROOM-32 Microcontroller, ESP-WROOM-32, Microcontroller

References

- ⚙ **Circuitmess Resources**