
WORD CLOCK MANUAL

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Contents

1 Basic Information	3
1.1 The Guts	3
1.2 Power	4
2 Button Functions & Menus	5
2.1 Time Display - Alphabetical	6
2.2 Time Display - Numerical	6
2.3 Main Menu - Seconds Selection	6
2.4 Main Menu - Minutes Selection	7
2.5 Main Menu - Hours Selection	7
2.6 Editing - Seconds	7
2.7 Editing - Minutes	8
2.8 Editing - Hours	8

1 Basic Information

1.1 The Guts

The word clock is essentially a string of 100 individual RGB LEDs, which are placed into a grid with a snake-like pattern. The string is controlled by an arduino pro mini, which reads the current time from a highly accurate DS3231 real time clock. The DS3231 keeps time using a coin cell battery, which should last around 5 years.

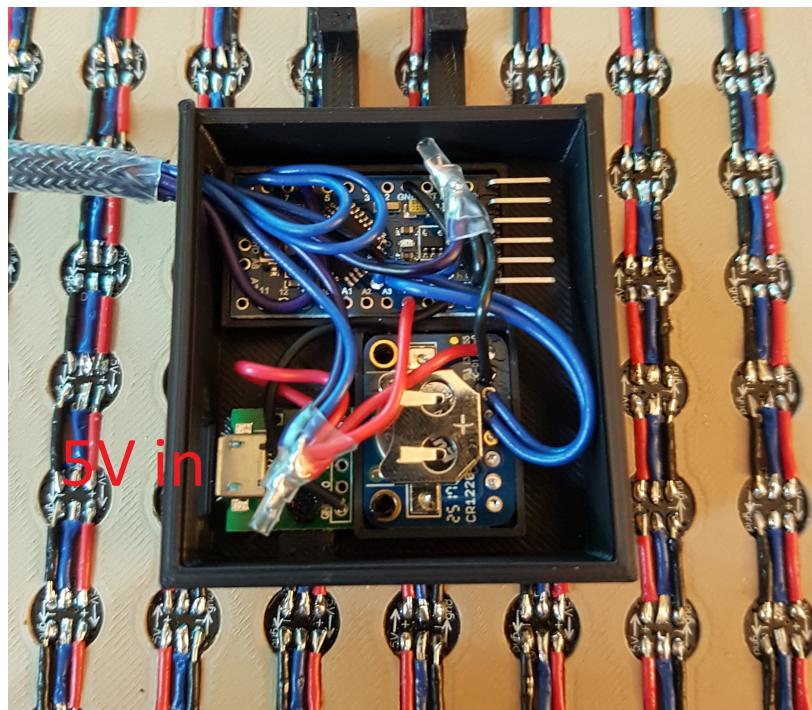


Figure 1: The guts. A microUSB connector, Arduino, and RTC.

All of the "clock things" are done inside of this little box on the back.

1.2 Power

The clock does not require any special procedure when powering on & off. Simply using the toggle button on the attached microUSB cable will turn the clock on or off.



Figure 2: The power connection, showing the cable with toggle button.

2 Button Functions & Menus

The clock only has 2 buttons to use for editing and saving colors, changing the time, changing the display style, and all of the other functions. To make this work, buttons can be either pressed or held which result in different actions.

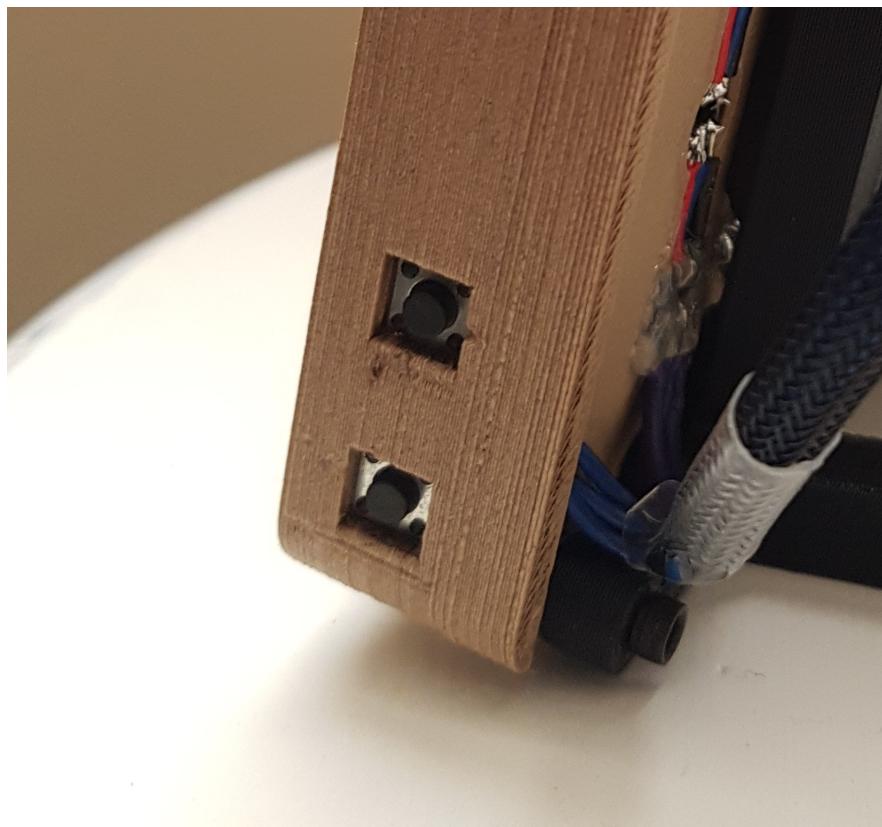


Figure 3: The two buttons, hidden on the side.

Each of the states below have their own unique responses to button inputs, this is due to the way the program is written.

2.1 Time Display - Alphabetical

The default display, when the time is spelled out as a phrase.

1. UP button pressed: cycle top color
2. UP button held: change to numerical time display
3. DOWN button pressed: cycle bottom color
4. DOWN button held: enter main menu

2.2 Time Display - Numerical

The alternate display, where the time is represented by numbers.

1. UP button pressed: cycle top color
2. UP button held: change to alphabetical time display
3. DOWN button pressed: cycle bottom color
4. DOWN button held: enter main menu

2.3 Main Menu - Seconds Selection

The main menu, where the white "S" is highlighted.

1. UP button pressed: begin editing seconds
2. UP button held: save current color scheme
3. DOWN button pressed: cycle selection to minutes
4. DOWN button held: return to time display

2.4 Main Menu - Minutes Selection

The main menu, where the white "M" is highlighted.

1. UP button pressed: begin editing minutes
2. UP button held: save current color scheme
3. DOWN button pressed: cycle selection to hours
4. DOWN button held: return to time display

2.5 Main Menu - Hours Selection

The main menu, where the white "H" is highlighted.

1. UP button pressed: begin editing hours
2. UP button held: save current color scheme
3. DOWN button pressed: cycle selection to seconds
4. DOWN button held: return to time display

2.6 Editing - Seconds

The editing menu, where the current second is flashing red and white.

1. UP button pressed: add a second
2. UP button held: change to editing minutes
3. DOWN button pressed: subtract a second
4. DOWN button held: return to main menu

2.7 Editing - Minutes

The editing menu, where the current minute is flashing red and white.

1. UP button pressed: add a minute
2. UP button held: change to editing hours
3. DOWN button pressed: subtract a minute
4. DOWN button held: return to main menu

2.8 Editing - Hours

The editing menu, where the current hour is flashing red and white.

1. UP button pressed: add an hour
2. UP button held: change to editing seconds
3. DOWN button pressed: subtract an hour
4. DOWN button held: return to main menu