Timer User Manual

Introduction

This device is an electronic apparatus based on Arduino that combines several functionalities such as display on 7-segment displays, light animations with NeoPixel LEDs, sound playback via a DFPlayer Mini MP3 module, and user interaction through multiple buttons.

Main Features

- **Time Display**: Shows days, hours, minutes, and seconds on 7-segment displays.
- **LED Animations**: Multiple integrated visual animations, including special effect sequences.
- **Sound Management**: Playback of sounds and tones via an integrated speaker.
- **Battery Level Measurement**: Displays the remaining battery percentage.
- **Display of Remaining Time**: Shows the remaining time in normal mode.
- **Special Modes**:
    - Sleep and Wake Mode
    - Test Mode
    - Burnout Mode
    - 29 Years Mode
- **Parameter Control**: Setting the timer (seconds, minutes, hours, days) via the buttons.

Description of Buttons

Button 1 (VORTEX) (BP_VORTEX - connected to A5)

- **Press**: Activates Burnout mode (if the timer is in normal mode), launching a special sequence of animations and sounds. No more control—the time is calculated randomly using a seed generated by the power adjustment potentiometer.

Button 4 (Sleep) (BP1 - connected to A4)

- **Short Press**: Puts the device into sleep mode. The displays and LEDs are turned off, and the buzzer is deactivated.
- **Long Press**: Wakes the device from sleep mode. The displays and LEDs are turned back on, and the buzzer is reactivated.
- **Double Click**: Directly accesses the timer setting menu.

Button PWR (Power) (BP2 - connected to A3)

- **Short Press**: Navigates to the next menu to set the timer (when the timer is not counting down).
- **Long Press**: Restarts the device.
- **Double Click**: Activates the timer with the current parameters.

Button FCN (DOWN) (BP_DOWN - connected to A2)

- **In Setting Menus**: Decreases the value of the current parameter (seconds, minutes, hours, days).
- **Simultaneous Press with BP_UP**: Activates test mode.
- **During Timer Execution**: Displays the battery level.

Button NAME MENU (UP) (BP_UP - connected to A1)

- **In Setting Menus**: Increases the value of the current parameter (seconds, minutes, hours, days).
- **Simultaneous Press with BP_DOWN**: Activates test mode.
- **During Timer Execution**: Displays the remaining time (only in normal mode).

Button END (START STOP) (BP_START - connected to A0)

- **Simple Press**: Starts the countdown after settings (SLIDE on the screen) in normal mode.
- **During Timer Execution**:
    - **Press**: Activates or deactivates the buzzer.

Using the Device

Starting Up

- To turn on the device, double-click the **Power** button.

Sleep Mode

- To put the device into sleep mode, perform a short press on the **Sleep** button.
- The displays and LEDs turn off, and the buzzer is deactivated to save energy.

Exiting Sleep Mode

- To exit sleep mode, double-click the **Sleep** button.
- **Note**: Sleep mode does not stop the timer operation; it continues counting.

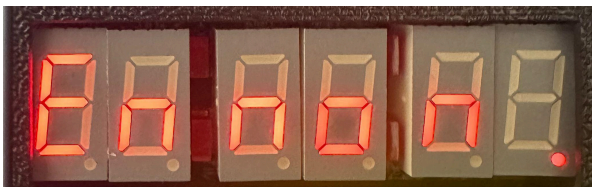
Setting the Timer

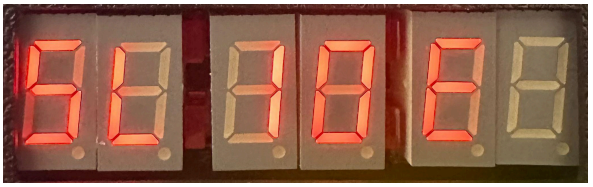
!!! IMPORTANT !!!

- The timer must be in a "waiting" state, indicated by the Arduino's status LED 13 blinking. By default, the timer is in this state at startup, but it may not always be the case. Simply click once on the **Start/Stop** button to set it.

Accessing the Setting Menu

- Press the **POWER** button to navigate through the timer setting menus.
- Each click advances you to the next menu.
- When the message **“Slide”** is displayed, you can click the **START/STOP** button to start the sequence. If an error message appears, the setting is incorrect.





Selecting Parameters

- **Menu 1**: Setting **seconds**.
- **Menu 2**: Setting **minutes**.
- **Menu 3**: Setting **hours**.
- **Menu 4**: Setting **days**.
- **Menu 5**: Confirmation of parameters.
- **Menu 6**: **Slide** or **Error** message. If **Slide**, click the **Start/Stop** button to launch the sequence.

Adjusting Values

- Use the **UP** button to increase the value.
- Use the **DOWN** button to decrease the value.

Starting the Timer

- After setting the parameters, press the **START/STOP** button to launch the timer.

Timer Execution

While the timer is running:

- The device displays the elapsed time.
- Specific LED animations and sounds are played depending on the remaining time.
- **Button Functions**:
    - **DOWN**: Displays the battery level.
    - **UP**: Displays the remaining time.
    - **START/STOP** (click): Activates or deactivates the buzzer.
    - **SLEEP** (click/long press): Activates sleep mode or wakes up the timer.
    - **VORTEX**: If clicked during the countdown, it activates the slide too early (Burnout mode), and the timer enters random mode.

Burnout Mode

- To activate Burnout mode, press the **VORTEX** button during timer execution.
- This mode launches a special sequence with unique animations and sounds.
- Initially, a 1 minute 30 seconds countdown is launched for demonstration. Then, depending on the position of the power potentiometer, a random time is calculated for each cycle.
- **Important**: In this mode, you must click the **VORTEX** button when there are between 0 and 2 seconds left to change the cycle; otherwise, the timer enters **29 Years Mode**.
- **Button Functions**:
    - **DOWN**: Displays the battery level.
    - **START/STOP** (click): Activates or deactivates the buzzer.
    - **SLEEP** (click/long press): Activates sleep mode or wakes up the timer.
    - **VORTEX**: Activates the vortex when less than 2 seconds remain.

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29 Years Mode

- You missed your slide in Burnout mode? Too bad—you are stuck here for 29 years. Hope this world suits you.

Displaying Battery Level

- At any time, you can display the battery level by pressing the **DOWN** button during timer execution.
- The device will display the remaining battery percentage on the 7-segment displays.

Test Mode

- To access test mode, press the **UP** and **DOWN** buttons simultaneously when the timer is in waiting mode.
- Test mode lights up all the LEDs and displays all the animations to verify the device's proper functioning.
- A continuous sound is emitted during the test.
- Test mode lasts 10 seconds, after which the device returns to the previous state.

Restarting the Device

- To restart the device, perform a long press on the **POWER** button.
- The device restarts, which can be useful in case of malfunction.

Visual and Sound Indications

- **NeoPixel LEDs**: Indicate the timer's power/generation of the random seed.
- **7-Segment Displays**: Display time, animations, and special messages.
- **Buzzer**: Emits tones to signal specific events (startup, alerts, etc.).
- **Speaker**: Plays MP3s (vortex sound).

Safety and Precautions

- Ensure that the battery is correctly connected and charged to avoid any malfunction.
- Avoid pressing multiple buttons simultaneously unless otherwise indicated (as in test mode).
- Handle the device carefully to preserve sensitive electronic components.
- **Do not connect the USB cable to the Arduino when the timer is powered by its battery.** (Turn off the timer or disconnect the battery)