

# Digital Alarm Clock User Manual

ECE263 Lab 5

Michael Benker

Jacob Aubertine

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**1. About the Digital Alarm Clock**

The Digital Alarm Clock tracks the time including the month and day. The Digital Alarm Clock allows the user to create an alarm. A buzzer will activate when the alarm time is reached. The alarm setting consists of hours and minutes, activating regardless of the month and day.

**2. 4x4 Button Interface**

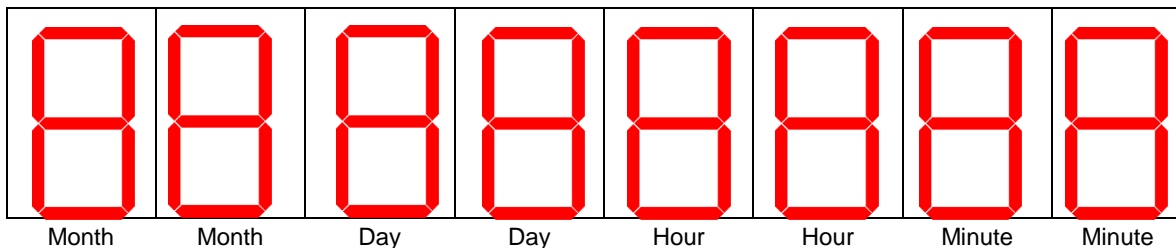
**Figure 1** below shows the function of each button on the 4x4 button board. The 4x4 button board in the user's interface for communicating with the Digital Alarm Clock. Uses for the board include setting an alarm, changing an alarm setting and stopping an alarm buzzer.

7	8	9	ALRM SET
4	5	6	ALRM ON/OFF
1	2	3	SET DATE/TIME
BACK	0	USR 2	USR 3

**Figure 1:** Keypad Layout

**3. Digital Display**

**Figure 2** below shows the 8-digit Month, Date and Time Digital Display Screen. The Digital Display shows the real time while the Digital Alarm Clock is in normal time mode and displays the alarm selection time while inputting the desired alarm time (Alarm Input Mode).



**Figure 2.** Digital Display

4. **Buzzer Alarm**

A buzzer will be activated when the real time matches the desired alarm time.

5. **Set Date and Time**

The following actions are taken during Time Set Mode.

- a. To enter a new time to begin counting at, the user selects the button "SET DATE/TIME". This button selection enters the user into the Time Set Mode.
- b. The user enters 8 digits to indicate the month, day, hour and minutes. The format of the time shown is MMDDHHmm.
- c. After the 8 digits are entered, the Time Set Mode will be exited automatically. The user cannot change the Alarm time by entering Alarm Input Mode until finished inputting the time and exiting Time Set Mode.

6. **Alarm Input Mode**

The following actions are taken during Alarm Input Mode.

- a. To enter a new alarm time, the user selects the button "ALARM SET" on the 4x4 Button Board. This enters the user into Alarm Input Mode.
- b. The user enters 4 digits to indicate the hour and minutes. The format of the alarm shown is HHmm.
- c. After the 4 digits are entered, the Alarm Input Mode will be exited automatically. The user cannot change the time by entering Time Set Mode until finished inputting the alarm and exiting Alarm Input Mode.

7. **Alarm On/Off Setting**

While the user is neither in the Alarm Input Mode nor the Time Set Mode, the user may turn the alarm on or off using the "ALRM ON/OFF" button found on the 4x4 button board.

8. **Turning off the Buzzer Alarm**

When the alarm is activated, the buzzer will automatically sound. To turn off the buzzer, the user presses any button on the 4x4 button board.