Bad Interface Design: SMEG Oven

The purpose of the Interface is to operate a kitchen oven. There are 2 dials that can be turned left and right and snap back into the center position upon release. The dials can also be pressed. There is audible feedback (beep sound), and a basic display with several 7-segment digits and light-up icons. The interaction is the following:

Off state:

	Left dial	Right dial
Press	Opens UI to set a timer which can be set by turning the left dial and confirming with a press	Turns the oven on (shows settings on display) but doesn't turn on heating
Press and hold	No effect, but plays a beep sound	No effect, but plays a beep sound
Turn left	---	---
Turn right	Toggles the light inside the oven on or off	---

On state (not heating):

	Left dial	Right dial
Press	Cycles through the following settings which can then be changed by turning the dial and pressing to confirm: Temperature, timer, turn on heating timer*, turn off heating timer*, no setting	If the left dial is in mode "no settting", Toggles the heating on. Otherwise: no effect.
Press and hold	--- (plays a beep sound)	Completely turns off the oven
Turn left	---	Cycles through the modes forward and changes the temperature to the one last used for the mode
Turn right	---	Cycles through the modes backwards and changes the temperature to the one last used for the mode

*the automatic turn on and off are assumptions based on the icons.

On state (heating):

	Left dial	Right dial
Press	Cycles through the following settings which can then be changed by turning the dial and pressing to confirm: Temperature, timer, turn on heating timer*, turn off heating timer*, no setting	If the left dial is in mode "no setting", Toggles the heating off. Otherwise: no effect
Press and hold	--- (plays a beep sound)	Completely turns off the oven
Turn left	---	---
Turn right	Toggles the lamp in the oven on or off	---

Pressing the buttons sometimes plays beep sounds, however there are also some actions that don't play the sound and some button presses without any effect that play it, which makes this feedback useless.

A blinking icon indicates that it is selected to be changed by turning the left dial.

Obviously, some actions have obvious immediate feedback, like turning on and off the lamp or the heating (which produces a humming sound like any oven)

Issues

The biggest issue of the interface is that the main functionality (for many users likely the only functionality that is used) of turning on the heating in a specific mode to a specific temperature is not easy, even if the user is experienced:

1. Press right dial to turn the oven on
2. Turn right dial left or right until the desired more is selected.
3. Press left dial once to enter the mode that allows changing the temperature
4. Turn left dial to select the desired temperature
5. Press left dial 3 times to cycle through the settings completely (this is necessary because pressing the right dial while a setting is selected has no effect
6. Press the right dial to turn on the heating

To turn off the oven:

7. When the cooking is done, press and hold the right dial to turn off the oven.

An experienced user can also use this slightly more efficient approach:

1. Press right dial to turn the oven on
2. Turn right dial left or right until the desired more is selected.
3. Press right dial to turn on the heating
4. Press left dial once to enter the mode that allows changing the temperature
5. Turn left dial to select the desired temperature

However, this makes turning off the oven more complicated:

6. Press left dial 3 times to cycle through the settings completely (this is necessary because pressing the right dial has no effect while a setting is selected)
7. Press and hold the right dial to turn off the oven

Further Issues:

- When changing the temperature while the oven is preheating, pressing the left dial doesn't have any visual feedback that the mode to change the temperature was selected, because while the oven is preheating the °C icon is flashing, which is the same visual feedback as entering the setting to change the temperature.
- The only feature which is accessible by one button press is turning on and off the lamp, a rarely useful feature
- I was so far unable to find a way to change the system time, which is especially frustrating because the "turn on timer" feature is based on setting a specific time instead of a duration

- In some conditional states, the left dial behaves unexpectedly. For example, when the turn off timer turned off the oven and the alarm for that plays, the left dial will not only disable the alarm but also turn the heating back on.

Suggested Solution

To make the oven more usable, I would implement the following changes:

- Remove the separation between on (not heating) and on (heating). Instead, always heat immediately after the oven is turned on.
- Make the temperature selection the default functionality of the left dial. Keep the timer functionality on the left dial otherwise, but after setting a normal timer, return to temperature selection immediately instead of cycling through the other timer modes.
- Remove the restriction on the right dial that makes turning off the oven impossible while a setting is being changed
- Add a press and hold function to the left dial to change the system time
- For switching on the lamp, there are two possibilities with different advantages:
    - Option A: Make turning on the lamp without heating a mode selectable by the right dial (this option is possibly less intuitive and removes the option of turning off the lamp while heating, but it requires no hardware changes)
    - Option B: Introduce a dedicated button that toggles the light (this is easier to use, but the functionality is rather unimportant, so I would opt for option A)

These changes make the core functionality much easier to use while maintaining all other features. Some features, like setting a timer, are easier to use as well.

Good Interface Design: Trade Republic (German online broker / banking app)

Trade Republic is a modern German bank that has a very feature rich but easy to use app. The app's purpose is to be the only required way of interaction with the bank.

All the information needed is front end center in 2 separate views regarding the bank account and the stock portfolio. That includes information that in traditional baking is hidden in the contractual documents, like interest rates.

The app uses several forms of visualization to make the possibly complex transaction information visible in a glance.
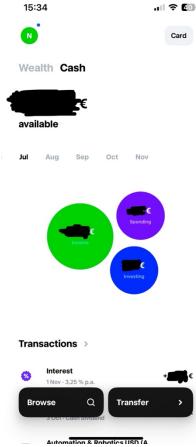
All functionalities are accessible in a few taps from the home screen, incl. advanced functionality like setting up recurring investment plans or ordering a new banking card.

The app furthermore has educational information about investing in places where it is helpful. For example, it makes derivatives trading and ETF investment plans approachable even for people without experience in that topic, for which traditional banks usually require the consulting by an employee of the bank. That is done by providing explanations of these complex topics when they are needed and suggesting popular options among other customers.

One complaint that I have with the User interface is that less frequently needed, but still important information, is sometimes not easy to find (for example the yearly tax report), because they are hidden in the same inbox that is cluttered by other legal and contractual documents. Furthermore, while offering more functionality than traditional banks in some places, in other places this app lacks an easy way to access standard features of other banking apps, like managing multiple accounts.