Air Fryer

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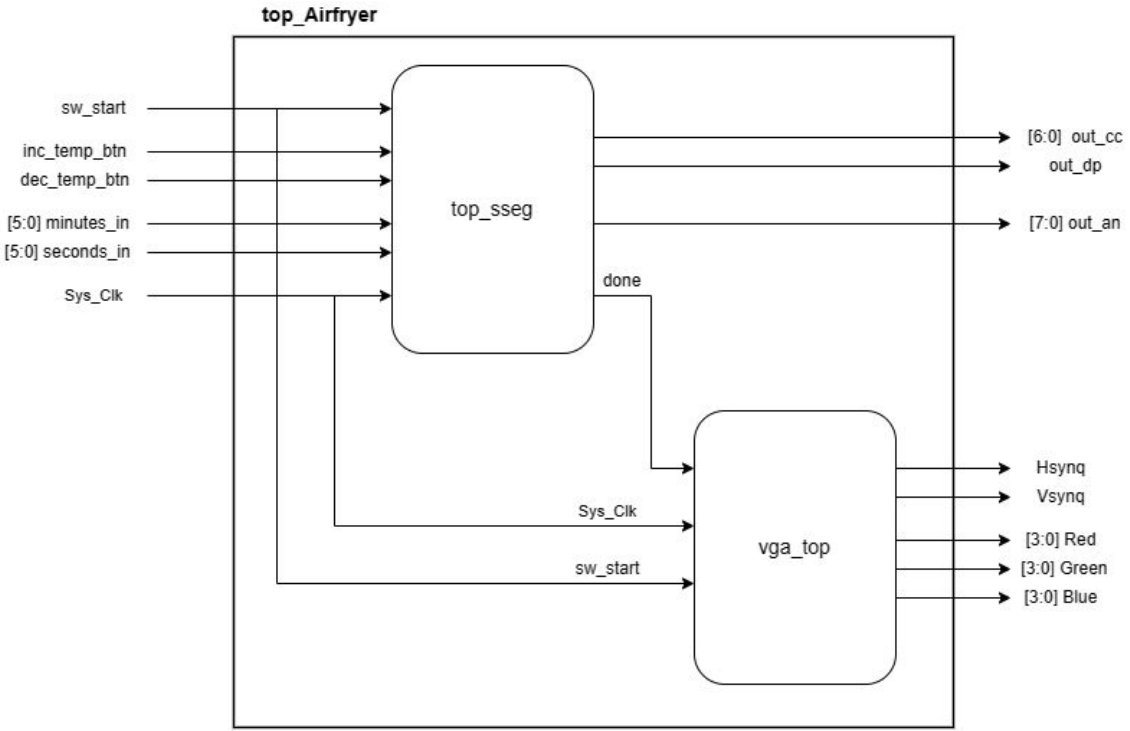
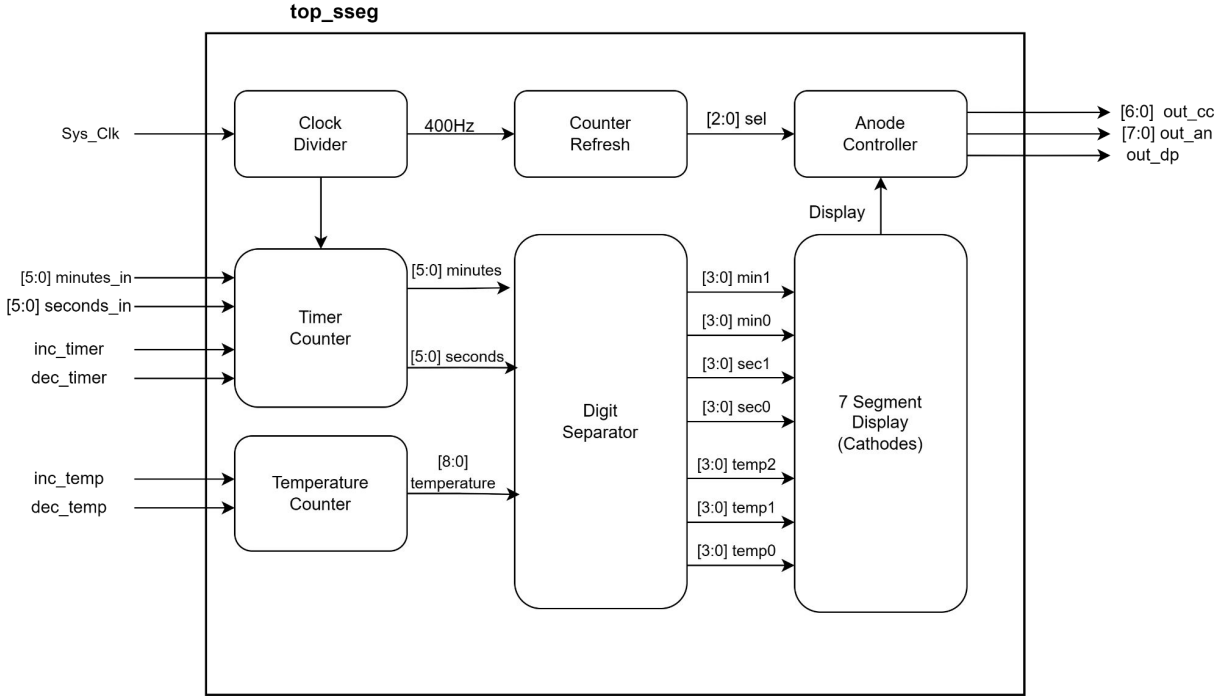
Overview Design of Airfryer



Design for Buttons, Switches, and 7-segment



Buttons

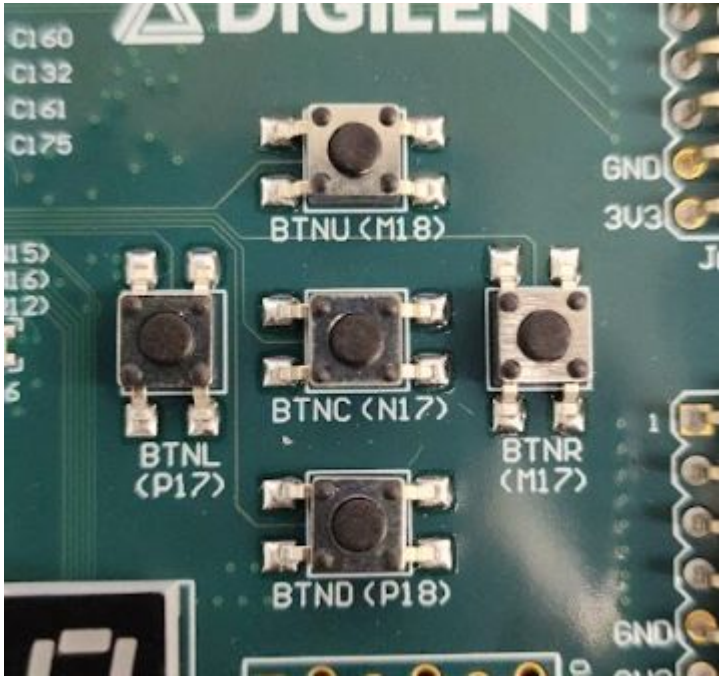
The user interface is designed to use the built in board's tactile buttons for direct manipulation of the air fryer temperature settings.

Interactive Air Fryer Control

The 'BTNU' button (M18) increase the temp by 5°

The 'BTND' button (P18) lowers the temp by 5°

The 'BTNC' button (N17) resets to default of set load minutes and seconds

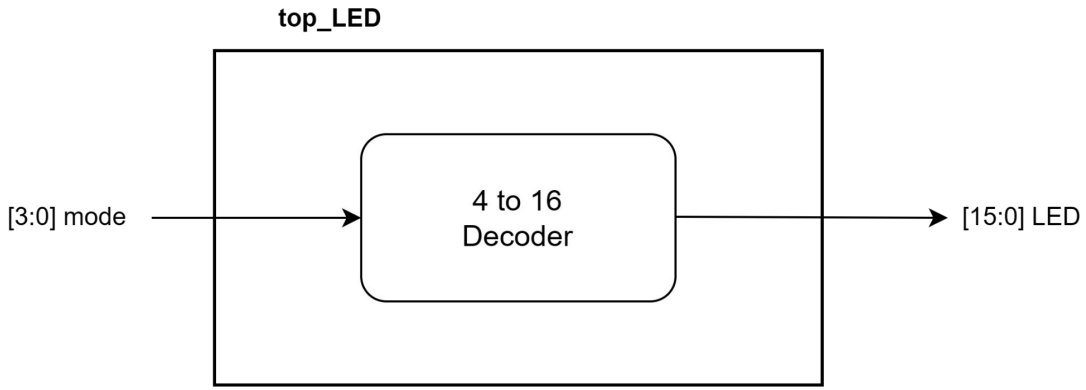


Switches

Thirteen switches are dedicated to precise control of the timing functionality:

- [15 - 10] (V10 - R16) control the timing in minutes
- [5 - 0] (T18 - J15) control the timing in seconds
- [7] (R13) manipulates the start/stop time

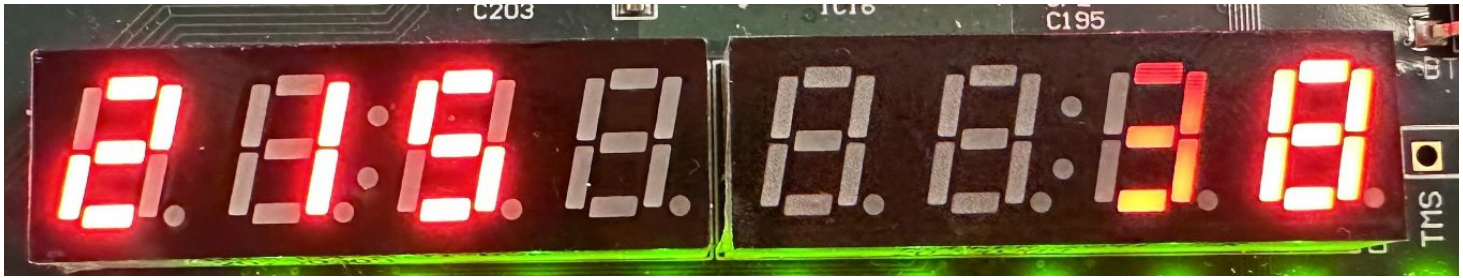
LEDs



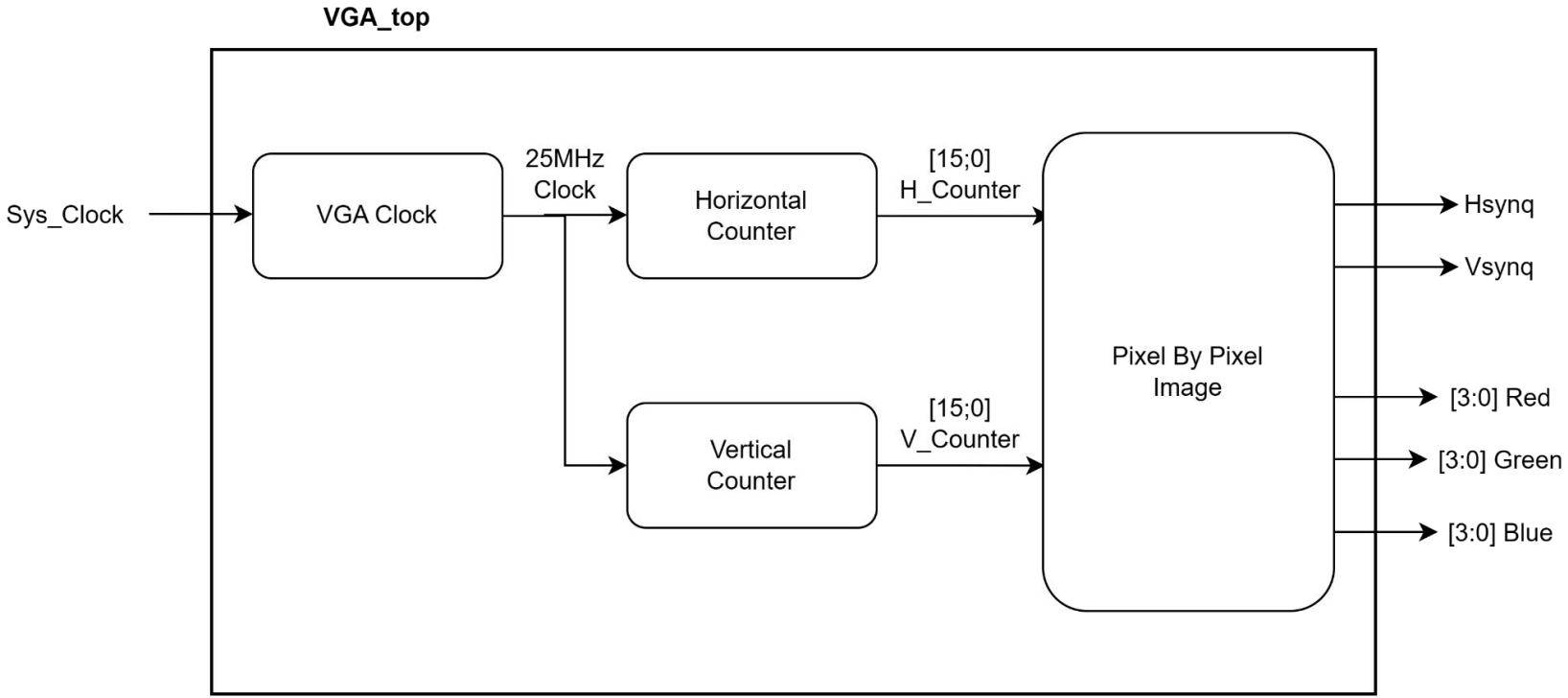
- Three different modes that determine how many LEDs show
- Mode is determined by the most significant 4 bits of the temperature
- Mode 200 degrees, LEDs 0-4 are shown
- Mode 300 degrees, LEDs 0-9 are shown
- Mode 400 degrees, all LEDs are shown
- By default, ten LEDs are shown in the middle

7-Segment Display

- Our project integrates all eight 7-segment displays.
- The first LED signals the operational mode of the air fryer.
- The first three 7-segments display the selected temperature from 200 to 400 degrees.
- The remaining four 7-segments convey the cooking time in minutes and seconds.
- Utilizes a 1 Hz (1 sec delay) clock for the counter



Design for VGA



VGA

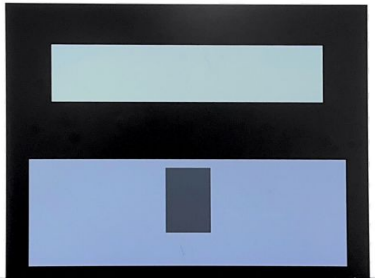
The VGA integration in our airfryer project enhances the user interface with real-time visual cues:

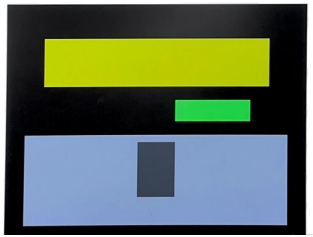
Power States

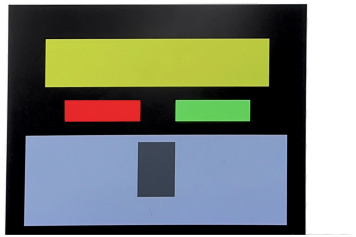
- "On" displays a yellow box. [bottom images]
- "Off" is represented by a grey screen. [top image]

Countdown Timer

- "Running" features a green LED. [bottom right image]
- "Paused/Stopped" is indicated by a red led. [bottom left image]







Thank you