**Kenovo\_ElectricBlender**

In scope features:

1. Electric blender with 3 speeds.
2. Hardware protection circuit for over-voltage detection, In case of over-voltage detection the system shuts down completely.
3. The blender have 4 operating states in sequence controlled using one tactile button (off >> speed 1 >> speed 2 >> speed 3).
4. Motor will rotate in clock wise direction.
5. The voltage monitoring is for the motor supply voltage not the mc supply voltage.
6. Voltage detection circuit should be connected to the motor supply voltage.
7. Additional hardware can be used to detect the over-voltage state.
8. A recovery feature to stop the motor If the voltage exceeds motor operating voltage.
9. the speeds percentage from maximum speed:
   * speed 1 = speed/3
   * speed 2 = speed/3 + speed 1
   * speed 3 = speed/3 + speed 2
10. Speed remains the same if user pressed button forever.

Blender stays active with current speed unless user changes its operating state using button.

1. Button used is tactile switch.
2. Action is immediately taken after button release with no delays.
3. Must press button and release it to initiate action.
4. The action is supposed to be initiated in no time from the request time at button release.
5. The motor should be supplied the sufficient voltage for optimum operating conditions.
6. The motor driver circuit must be isolated from the control circuit to avoid reflected current from burning the controller.
7. Motor must be isolated in a chase to protect the user from touching the blades.

Out of scope features:

(features will not implemented at the project)

1. ON/OFF switch to control **Kenovo\_ElectricBlender.**
2. Move direct from off state to higher speed (two or three).
3. LCD to display the speed of **Kenovo\_ElectricBlender.**
4. LCD to display the supplying voltage to **Kenovo\_ElectricBlender.**
5. **Kenovo\_ElectricBlender** support two direction of the motor (forward-reverse).
6. KEYPAD to choose between different speeds
7. Motor should remain ON in case of over-voltage condition.
8. Speed of the motor change if user pressed button forever.
9. Time delay to initiate the Action after user releases the button.

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