1. **Introduction**

In this Documentation the entire wash control logic is explained.

1. **Header Inclusions**

* **Includes.h**: Likely a header that includes essential system-wide declarations.
* **COOKING\_H**: An header related to cooking functions.
* **DIAGIDS\_H**: Header for diagnostic identifiers.
* **Wash.h**: A header for wash-related functions and structures.
* **DIAG\_H:** Header for diagnostics Functions.
* **DEBUG\_H**: Header for debugging functionalities.
* **FLOWSENSOR\_H**: Header for flow sensor-related functions.

1. **Macro Definitions**

* **WASH\_WATER\_INLET\_RESOLUTION**: It’s a Factor to convert the wash timeout value to minutes’ resolution to seconds.
* **DRAIN\_VALVE\_OPEN\_TIMEOUT**: A timeout duration for keeping the drain valve open (value: 60).
* **WASH\_WATER\_100MS\_FACTOR**: A factor applied to calculate time in 100ms resolution for water inlet timeout couter(value: 10).
* **WASH\_TOGGLE\_TIMEOUT**: A timeout duration used for toggling the wash pump (value: 30).

1. **Global Variables**

* **washState\_EN washState:** This is an Enumeration variable used to control the wash Logic state machine.
* **prevWashState**: A variable to store the previous wash state.
* wash: A structure (**washSettings\_ST**) containing wash-related settings.
* BOOL variable WTReachedAtleastOnce is used to indicate the The Wash temperature is atleast reached once.
* **washTimoutCounter :** This timeout counter is used to control the wash timeout
* **washCycles**: This variable will increment every wash cycle completion, this is used to control the multiple wash cycle iteration.
* **WashTurnOnCounter & WashTurnOffCounter** this two variables are used to control the 30 sec wash pumps wash toggle functionality.

1. **Function Declarations**

* **washSettingsRxCbk**: A function that appears to handle the reception of wash settings Comif Message.
* **washMain**: A significant function responsible for managing the entire wash process. It contains a state machine that controls the oven's various components and states during washing.

1. **Function washMain**

**Function Overview**

The **washMain** function serves as a state machine that manages the washing process based on the current **washState**. It checks and updates the state and performs specific actions accordingly. Here is an overview of the key actions and states handled by this function:

1. **Idle State (WS\_Idle):**
   * If the **start** flag in the **Wash** settings structure is **FALSE**, it transitions to the **WS\_WashCompleted** state.
   * Checks if the oven is idle and monitors the drain valve's timeout to close it if open.
2. **Configuring Wash Timings (WS\_ConfigWashTimings):**
   * Updates the machine status to indicate preparation for washing.
   * Checks if the oven door is open, and if so, transitions to the **WS\_washingPaused** state.
   * Turns off steam and the motor.
   * Configures temperature settings and sets various timers.
   * Initiates the water inlet process.
3. **Water Inlet State (WS\_waterInlet):**
   * Updates the **machine status** to indicate washing is in progress.
   * Checks if the oven door is open and handles pausing if necessary.
   * Monitors the water inlet timeout and transitions to the **WS\_WashPumpToggle** state when the timeout is reached.
4. **Wash Pump Toggle (WS\_WashPumpToggle):**
   * Toggles the wash pump on and off based on timing.
   * Manages counters for turning on and off the pump.
   * Transitions to the **WS\_Washing** state when appropriate.
5. **Washing State (WS\_Washing):**
   * Monitors temperature and controls heating and motor operations.
   * Checks if the wash cycle's timeout is reached, and if temperature conditions are met, proceeds to drain the water.
   * Transitions to the **WS\_DrainTheWashedWater** state.
6. **Draining Washed Water (WS\_DrainTheWashedWater):**
   * Manages the draining process.
   * Closes the drain valve and waits for a timeout.
   * Transitions to the **WS\_ReLoadTheNextWashCycleDatas** state when the timeout is reached.
7. **Reloading for Next Wash Cycle (WS\_ReLoadTheNextWashCycleDatas):**
   * Handles the preparation for the next wash cycle, if applicable.
   * Configures settings and timers for subsequent cycles.
   * Transitions back to the **WS\_waterInlet** state to start the next cycle or to **WS\_WashCompleted** when all cycles are completed.
8. **Wash Completed State (WS\_WashCompleted):**
   * Handles actions to be taken when the wash process is completed.
   * Resets various parameters and flags.
   * Updates machine status to indicate idle.
9. **Washing Paused State (WS\_washingPaused):**
   * Pauses the wash process when the oven door is open.
   * Handles resuming the previous state when the door is closed.
10. **No Water Pause State (WS\_NoWaterPause):**
    * Pauses the wash process when there is no water flow.
    * Resumes the previous state based on specific conditions.
11. **Default Case:**
    * Handles any unspecified or invalid states.