

## Specification List and Requirements:

The process flow will proceed as follows:

1. User will input recipe parameters through a user interface.
  - a. Mash Water Level (L)
  - b. Sparge Level (L)
  - c. Mash Temperature ( $^{\circ}\text{C}$ )
  - d. Mash Time (min)
  - e. Boil Time (min)
  - f. Boil Additive Settings (min)
  - g. Cool-down Temperature ( $^{\circ}\text{C}$ )
  
2. Brew Kettle Control Specifications
  - a. Liquid level monitoring within  $\pm 0.1$  L
  - b. Temperature control within  $\pm 2$   $^{\circ}\text{C}$
  - c. Timers within  $\pm 5$  s
  - d. Directional flow control.
  
3. Mash Tun & Sparge Control Specifications
  - a. Liquid level monitoring within  $\pm 0.1$  L
  - b. Temperature control within  $\pm 2$   $^{\circ}\text{C}$
  - c. Timers within  $\pm 5$  s
  - d. Directional flow control.
  - e. Additive timer control within  $\pm 5$  s.
  
4. Cooling Tank Control Specifications
  - a. Temperature control within  $\pm 2$   $^{\circ}\text{C}$ .
  - b. Flow rate within  $\pm 0.2$  L/min.
  
5. Pump Control Specifications
  - a. Time driven pump control.
  - b. Temperature driven pump control.
  - c. Level driven pump control.

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