**Edge cases handling**

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| **Edge case** | **Detection method** | **System response** | **Indicator light** |
| **Wi-Fi Disconnected** | Wifi connection is not detected (check using Wifi library). | Switch to offline mode, use cached values, default settings applied | Red |
| **Wi-Fi Restored** | Network is detected (check using Wifi library). | ESP retries connection every few seconds with saved credentials. | Turns off |
| **Low Water Level** | Water level sensor detects low level | |  | | --- | | Stop irrigation, alert user |  |  | | --- | |  | | Green-Yellow |
| **Both Wi-Fi & Low Water** | Wifi connection is not detected & water level sensor detecs low level | |  | | --- | | Water alert takes priority |  |  | | --- | |  | | Green-Yellow |
| **Invalid Calibration** | Difference between dry soil measurement and wet soil measurement < 500 | Reset values, alert user using application and require reattempt. |  |
| **Calibration Timeout** | Calibration process exceeds 5 minutes. | Cancel calibration process, reset values. |  |
| **Prevent Over-Irrigation** | Time since last irrigation < 1 min | Delay next moisture reading to allow the soil to absorb water. |  |