**PO3\_DGW\_DIGITAL\_WATCH**

**Software Requirement Specification**

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| --- | --- |
| **Reference Document** | PO3\_DGW\_SRS |
| **Version** | V0.5 |
| **Status** | Proposed |

|  |  |  |  |
| --- | --- | --- | --- |
| **Table of History** | | | |
| **Version** | **Author** | **Date** | **Change** |
| 0.0 | Amr Ibrahim | 29/01/2020 | Initial Creation |
| 0.1 | Ghada Mohamed | 30/01/2020 | Updated Alarm Mode and Stopwatch Mode Requirements |
| 0.2 | Mariam El-Shakafi | 31/01/2020 | Fulfilled review points |
| 0.3 | Amr Ibrahim | 12/01/2020 | New Creation |
| 0.4 | Ghada mohamed | 13/02/2020 | -Updated the stopwatch mode by adding some requirements.  -Editing some points in the description part.  - Editing the output signal |
| 0.5 | Amr Ibrahim | 19/02/2020 | Context Diagram |

**Table of Contents**

[**1 Introduction** 2](#_Toc32992294)

[**1.1 Software Features** 3](#_Toc32992295)

[**2 Context Diagram** 4](#_Toc32992296)

[**3 Functional Requirements:** 5](#_Toc32992297)

[**3.1 Display Time Mode** 5](#_Toc32992298)

[**3.2 Alarm Mode** 8](#_Toc32992299)

[**3.3 Stop Watch Mode** 11](#_Toc32992300)

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# **1 Introduction**

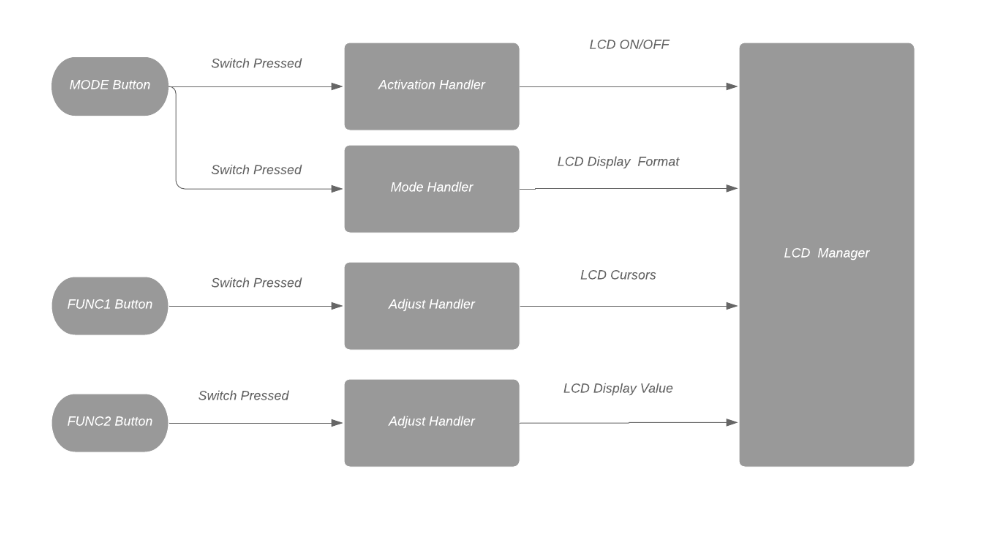
This section introduces the software requirements specification (SRS) for the Digital Watch.

## **1.1 Software Features**

The major feature of the digital watch as listed below.

* Display time with 12 AM/PM format.
* Adjust time.
* Alarm to set according to user input.
* Stopwatch (Start, Stop).
* Three buttons to control the system:
  + MODE
  + FUNC1
  + FUNC2

# **2 Context Diagram**



# **3 Functional Requirements:**

## **3.1 Display Time Mode**

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| --- | --- | --- | --- |
| **Req\_ID** | Req\_P03DGW\_SRS\_001\_V04 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_01\_V02 |
| **Author** | Amr Ibrahim | **Date** | 12/02/2020 |
| **Description:** | Software shall enter Display time mode:   * At Initialization | | |
| **Inputs** | Power | **Outputs** | Display time mode |
| **Test scope** | ITD / VTD | | |

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| **Req\_ID** | Req\_P03DGW\_SRS\_002\_V04 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_01\_V02 |
| **Author** | Amr Ibrahim | **Date** | 12/02/2020 |
| **Description:** | Software shall enter Display time mode:   * When MODE Button is pressed and CURRENT\_MODE is Stop watch mode. | | |
| **Inputs** | MODE Button | **Outputs** | Display time mode |
| **Test scope** | ITD / VTD | | |

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| **Req\_ID** | Req\_P03DGW\_SRS\_003\_V04 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_01\_V02 |
| **Author** | Amr Ibrahim | **Date** | 12/02/2020 |
| **Description:** | Software shall display the time in HH:MM:SS AM/PM format on LCD. | | |
| **Inputs** | Display time mode | **outputs** | LCD\_DATA |
| **Test scope** | ITD / VTD | | |

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| **Req\_ID** | Req\_P03DGW\_SRS\_004\_V04 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_02\_V02 |
| **Author** | Amr Ibrahim | **Date** | 12/02/2020 |
| **Description:** | The software shall adjust (minutes):   * take input from FUNC1 Button once, so the minutes digits will start blinking. | | |
| **Inputs** | FUNC1 Button | **outputs** | LCD\_DATA |
| **Test scope** | ITD / VTD | | |

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| **Req\_ID** | Req\_P03DGW\_SRS\_005\_V04 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_02\_V02 |
| **Author** | Ghada mohamed | **Date** | 13/02/2020 |
| **Description:** | The software shall to modify (minutes):   * it can be modified using FUNC2 button. | | |
| **Inputs** | FUNC2 Button | **outputs** | LCD\_DATA |
| **Test scope** | ITD / VTD | | |

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| **Req\_ID** | Req\_P03DGW\_SRS\_006\_V04 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_02\_V02 |
| **Author** | Amr Ibrahim | **Date** | 12/02/2020 |
| **Description:** | To adjust (hours) the software shall:   * take input from FUNC1 Button twice, so the minutes digits will start blinking. | | |
| **Inputs** | FUNC1 Button | **outputs** | LCD\_DATA |
| **Test scope** | ITD / VTD | | |

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| --- | --- | --- | --- |
| **Req\_ID** | Req\_P03DGW\_SRS\_007\_V04 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_02\_V02 |
| **Author** | Amr Ibrahim | **Date** | 12/02/2020 |
| **Description:** | Software shall modify (hours):   * it can be modified using FUNC2 button. | | |
| **Inputs** | FUNC2 Button | **outputs** | LCD\_DATA |
| **Test scope** | ITD / VTD | | |

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| **Req\_ID** | Req\_P03DGW\_SRS\_008\_V04 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_02\_V02 |
| **Author** | Amr Ibrahim | **Date** | 12/02/2020 |
| **Description:** | Software shall adjust the time (AM/PM), press FUNC1 Button a third time so the format starts blinking to indicate. | | |
| **Inputs** | FUNC1 Button | **Outputs** | LCD\_DATA |
| **Test scope** | ITD / VTD | | |

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| **Req\_ID** | Req\_P03DGW\_SRS\_009\_V04 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_02\_V02 |
| **Author** | Amr Ibrahim | **Date** | 12/02/2020 |
| **Description:** | Software shall modified format(AM/PM) WHEN FUNC2 Button is pressed. | | |
| **Inputs** | FUNC2 Button | **outputs** | LCD\_DATA |
| **Test scope** | ITD / VTD | | |

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| **Req\_ID** | Req\_P03DGW\_SRS\_010\_V04 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_02\_V02 |
| **Author** | Amr Ibrahim | **Date** | 12/02/2020 |
| **Description:** | Software will apply adjustments, when FUNC1 button is pressed for a fourth time. | | |
| **inputs** | FUNC1 Button | **outputs** | LCD\_DATA |
| **Test scope** | ITD / VTD | | |

## **3.2 Alarm Mode**

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| --- | --- | --- | --- |
| **Req\_ID** | Req\_P03DGW\_SRS \_011\_V04 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_03\_V02 |
| **Author** | Amr Ibrahim | **Date** | 12/02/2020 |
| **Description:** | Software shall enter Alarm mode:   * When MODE Button is pressed and CURRENT\_MODE is Display time mode. | | |
| **inputs** | MODE Button | **outputs** | Alarm mode |
| **Test scope** | ITD / VTD | | |

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| **Req\_ID** | Req\_P03DGW\_SRS\_012\_V04 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_03\_V02 |
| **Author** | Amr Ibrahim | **Date** | 12/02/2020 |
| **Description:** | * Software shall display the time in HH:MM: SS AM/PM format until Alarm time is reached. | | |
| **Inputs** | Alarm mode | **outputs** | LCD\_DATA |
| **Test scope** | ITD / VTD | | |

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| **Req\_ID** | Req\_P03DGW\_SRS\_013\_V04 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_04\_V02 |
| **Author** | Amr Ibrahim | **Date** | 12/02/2020 |
| **Description:** | The software shall adjust (minutes):   * when take input from FUNC1 Button once, so the minutes digits will start blinking. | | |
| **Inputs** | FUNC1 Button | **outputs** | LCD\_DATA |
| **Test scope** | ITD / VTD | | |

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| **Req\_ID** | Req\_P03DGW\_SRS\_014\_V04 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_04\_V02 |
| **Author** | Amr Ibrahim | **Date** | 12/02/2020 |
| **Description:** | The software shall modify (minutes):   * when take input signals from FUNC2 button. | | |
| **Inputs** | FUNC2 Button | **outputs** | LCD\_DATA |
| **Test scope** | ITD / VTD | | |

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| --- | --- | --- | --- |
| **Req\_ID** | Req\_P03DGW\_SRS\_015\_V04 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_04\_V02 |
| **Author** | Amr Ibrahim | **Date** | 12/02/2020 |
| **Description:** | To adjust (hours) the software shall:   * take input from FUNC1 Button twice, so the minutes digits will start blinking. | | |
| **Inputs** | FUNC1 Button | **outputs** | LCD\_DATA |
| **Test scope** | ITD / VTD | | |

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| **Req\_ID** | Req\_P03DGW\_SRS\_016\_V04 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_04\_V02 |
| **Author** | Amr Ibrahim | **Date** | 12/02/2020 |
| **Description:** | Software shall modify (hours):   * it can be modified using FUNC2 button. | | |
| **Inputs** | FUNC2 Button | **outputs** | LCD\_DATA |
| **Test scope** | ITD / VTD | | |

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| **Req\_ID** | Req\_P03DGW\_SRS\_017\_V04 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_04\_V02 |
| **Author** | Amr Ibrahim | **Date** | 12/02/2020 |
| **Description:** | Software shall adjust the time (AM/PM), press FUNC1 Button a third time so the format starts blinking to indicate. | | |
| **Inputs** | FUNC1 Button | **Outputs** | LCD\_DATA |
| **Test scope** | ITD / VTD | | |

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| **Req\_ID** | Req\_P03DGW\_SRS\_018\_V04 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_04\_V02 |
| **Author** | Amr Ibrahim | **Date** | 12/02/2020 |
| **Description:** | Software shall modified format(AM/PM) WHEN FUNC2 Button is pressed. | | |
| **Inputs** | FUNC2 Button | **outputs** | LCD\_DATA |
| **Test scope** | ITD / VTD | | |

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| **Req\_ID** | Req\_P03DGW\_SRS\_019\_V04 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_04\_V02 |
| **Author** | Amr Ibrahim | **Date** | 12/02/2020 |
| **Description:** | Software will apply adjustments, when FUNC1 button is pressed for a fourth time. | | |
| **inputs** | FUNC1 Button | **outputs** | LCD\_DATA |
| **Test scope** | ITD / VTD | | |

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| **Req\_ID** | Req\_P03DGW\_SRS\_020\_V04 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_05\_V02 |
| **Author** | Amr Ibrahim | **Date** | 12/02/2020 |
| **Description:** | * The software shall trigger a buzzer with notification when alarm time is reached in Alarm mode. | | |
| **inputs** | Alarm mode | **Outputs** | ALARM\_BUZZER |
| **Test scope** | ITD / VTD | | |

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| **Req\_ID** | Req\_P03DGW\_SRS\_021\_V04 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_05\_V02 |
| **Author** | Amr Ibrahim | **Date** | 12/02/2020 |
| **Description:** | * The software shall stop buzzer when FUNC2 Button is pressed | | |
| **inputs** | FUNC2 Button | **Outputs** | ALARM\_BUZZER |
| **Test scope** | ITD / VTD | | |

## **3.3 Stop Watch Mode**

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_P03DGW\_SRS \_022\_V02 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_06\_V02 |
| **Author** | Ghada Mohamed | **Date** | 13/02/2020 |
| **Description:** | * Software shall enter Stop watch mode:   When MODE Button is pressed and CURRENT\_MODE is Alarm mode. | | |
| **inputs** | MODE Button | **outputs** | Stop watch mode |
| **Test scope** | ITD / VTD | | |

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| --- | --- | --- | --- |
| **Req\_ID** | Req\_P03DGW\_SRS\_023\_V04 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_06\_V02 |
| **Author** | Ghada Mohamed | **Date** | 13/02/2020 |
| **Description:** | The software shall display 00:00:00. | | |
| **Inputs** | Stop watch mode | **outputs** | LCD\_DATA |
| **Test scope** | ITD / VTD | | |

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| --- | --- | --- | --- |
| **Req\_ID** | Req\_P03DGW\_SRS\_024\_V04 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_07\_V02 |
| **Author** | Ghada Mohamed | **Date** | 13/02/2020 |
| **Description:** | * The software shall start counting when FUNC1 button is pressed in Stopwatch mode initial state. | | |
| **Inputs** | FUNC1 Button | **outputs** | LCD\_DATA |
| **Test scope** | ITD / VTD | | |

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| **Req\_ID** | Req\_P03DGW\_SRS\_025\_V04 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_08\_V02 |
| **Author** | Ghada Mohamed | **Date** | 13/02/2020 |
| **Description:** | * The software shall stop counting when FUNC1 button is pressed in Stopwatch mode running state. | | |
| **Inputs** | FUNC1 Button | **outputs** | LCD\_DATA |
| **Test scope** | ITD / VTD | | |

|  |  |  |  |
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| **Req\_ID** | Req\_P03DGW\_SRS\_026\_V04 | **Covers** | FUNC\_PO3\_DGW\_CYRS\_09\_V02 |
| **Author** | Ghada Mohamed | **Date** | 13/02/2020 |
| **Description:** | * The software shall reset counter to 00:00:00 when FUNC2 button is pressed in Stopwatch mode. | | |
| **Inputs** | FUNC2 button | **outputs** | LCD\_DATA |
| **Test scope** | ITD / VTD | | |