

**PO3\_DGW\_Digital watch**

**(SRS)**

Table 1 Status Table

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| --- | --- | --- | --- | --- |
| **Document Name** | **Author** | **Version** | **Update Date** | **Status** |
| SRS | Mostafa Nader | 1.4 | 20/02/2020 | Proposed |

**DOCUMENT HISTORY**

Table Document History

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Version** | **Description of Change** | **Author** | **Date** | **Document Status** |
| 1 | Initial creation of SRS Document | Marina Medhat  Ahmed Qandeel | 23/01/2020 | Draft |
| 1.1 | Added requirements regarding the SIQ document answers | Marina Medhat  Ahmed Qandeel | 28/01/2020 | Draft |
| 1.2 | Added requirements regarding the SRS Review. | Marina Medhat | 7/02/2020 | Proposed |
| 1.3 | Added head titles for the requirements and updated the table of content after reviewing the SRS document | Mostafa Nader | 7/02/2020 | Proposed |
| 1.4 | Added Context diagram including signals and covered all the inputs/outputs in the requirements with these signals | Mostafa Nader | 20/02/2020 | Proposed |

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# INTRODUCTION

## **Purpose**

This is version 1 of the requirements specification for a simple Digital watch with alarm with settings and Stop Watch.

## **Glossary**

Definitions, acronyms and abbreviations

Digital watch consists of 3 main Functions:

1-Clock.

2.Alarm.

3.Stop Watch.

### **clock**

a device that has its own value of time in hours, minutes and seconds, which it displays and which it maintains accurately relative to when the time was last reset.

In this document, a "conventional watch" means such a clockwork or electric device in the real world; "watch" means a computer operating system function that returns

at least an absolute or elapsed time as measured by the operating system.

### **alarm**

a device which is a conventional clock with an additional time value setting and an attached alarm bell. When the clock time reaches the time of the "alarm setting" it rings the bell.

In this specification, "alarm clock" means the software application that imitates many of the functions of a conventional clock with an alarm.

### **ring the bell**

the continuous alert sound (the term "audible signal" is too pedantic!) that an alarm clock can make. It may be a buzzer or chime or other tone

(compare mobile phone "ring tones" which no longer resemble a bell).

### **clock time**

the time relative to the last reset of the clock.

## **General description**

The Digital Watch System that has A Clock with a simple alarm clock in an on-screen window and Stop watch. The user can select an option of the three options

(View Clock, setting stop watch, Setting alarm).

The clock provides an alarm and allows the user to set alarms and provide a Stop watch.

# Context Diagram

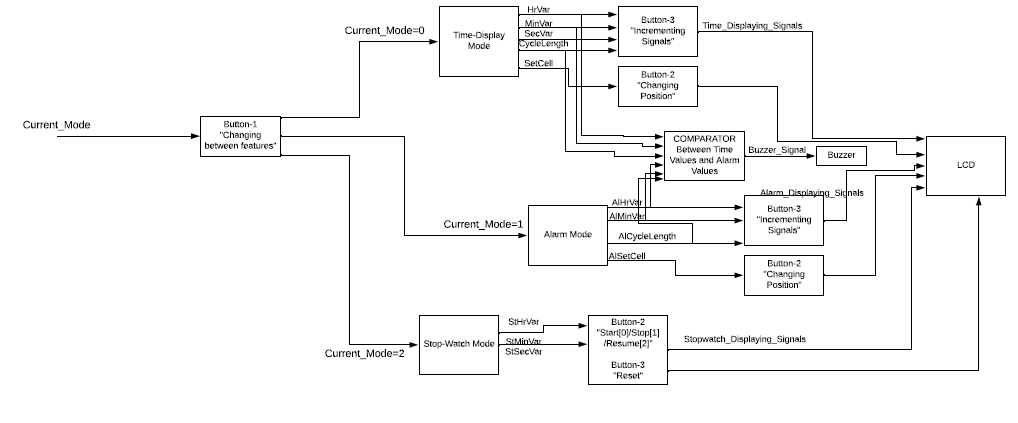


Figure Context Block Diagram

# FUNCTIONAL REQUIREMENTS

## **Time-Display Mode Requirements**

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| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO3\_DGW\_SRS\_01\_V01.2 | **Covers** | Req\_PO3\_DGW\_CYRS\_01\_V01.2 |
| **Author** | Marina Medhat | **Date** | 12/2/2020 |
| **Description:** | The SecVar Variable increments with delay 1 sec. and when it reaches 60 it resets to zero and increments the MinVar by 1 and when the MinVar reaches 60 it resets to zero and increments the HrVar by 1 | | |
| **inputs** | HrVar,MinVar,SecVar | **outputs** | Time\_Displaying Signals |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO3\_DGW\_SRS\_02\_V01.2 | **Covers** | Req\_PO3\_DGW\_CYRS\_01\_V01.2 |
| **Author** | Marina Medhat | **Date** | 12/2/2020 |
| **Description:** | When the HrVar reaches 12 it resets to zero and the CycleLegnth flag will toggle. If this flag is zero Am will be displayed and if this flag is one Pm will be displayed | | |
| **inputs** | HrVar,MinVar,SecVar | **outputs** | Time\_Displaying Signals |

## **Alarm mode requirements**

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO3\_DGW\_SRS\_03\_V01.2 | **Covers** | Req\_PO3\_DGW\_CYRS\_02\_V01.1 |
| **Author** | Marina Medhat | **Date** | 12/2/2020 |
| **Description:** | The Software keeps comparing the alarm variables with the time variable and if AlHrVar is equal HrVar & AlMinVar is equal MinVar & AlCycleLength is equal CycleLength the Buzzer\_Signal is one | | |
| **inputs** | HrVar,MinVar,SecVar, AlHrVar,AlMinVar,AlSecVar | **outputs** | Buzzer\_Signal |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO3\_DGW\_SRS\_04\_V01.2 | **Covers** | Req\_PO3\_DGW\_CYRS\_02\_V01.1 |
| **Author** | Marina Medhat | **Date** | 12/2/2020 |
| **Description:** | If Buzzer\_signal is one the buzzer is enabled else it is not enabled | | |
| **inputs** | Buzzer\_Signal | **outputs** | - |

## **Stop-Watch mode requirements**

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| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO3\_DGW\_SRS\_05\_V01.2 | **Covers** | Req\_PO3\_DGW\_CYRS\_03\_V01.2 |
| **Author** | Marina Medhat | **Date** | 12/2/2020 |
| **Description:** | The Three Variables (StHrVar, StMinVar, StSecVar) start with zeros and when the user start Stopwatch The SecVar Variable increments with delay 1 sec. and when it reaches 60 it resets to zero and increments the MinVar by 1 and when the MinVar reaches 60 it resets to zero and increments the HrVar by 1 | | |
| **inputs** | StHrVar, StMinVar, StSecVar | **outputs** | StopWatch\_Displaying\_Signals |

|  |  |  |  |
| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO3\_DGW\_SRS\_06\_V01.2 | **Covers** | Req\_PO3\_DGW\_CYRS\_04\_V01.1 |
| **Author** | Marina Medhat | **Date** | 12/2/2020 |
| **Description:** | The SW saves the last values of the Stopwatch and displays it on the LCD when the user press to stop the Stopwatch without incrementing of any variable. | | |
| **inputs** | StHrVar, StMinVar, StSecVar | **outputs** | StopWatch\_Displaying\_Signals |

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| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO3\_DGW\_SRS\_07\_V01.2 | **Covers** | Req\_PO3\_DGW\_CYRS\_04\_V01.1 |
| **Author** | Marina Medhat | **Date** | 12/2/2020 |
| **Description:** | The SW saved the last values of the Stopwatch and Continue increment it when the user press to Play the Stopwatch again. | | |
| **inputs** | StHrVar, StMinVar, StSecVar | **outputs** | StopWatch\_Displaying\_Signals |

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| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO3\_DGW\_SRS\_08\_V01.2 | **Covers** | Req\_PO3\_DGW\_CYRS\_05\_V01.1 |
| **Author** | Marina Medhat | **Date** | 12/2/2020 |
| **Description:** | The SW reset the values of the Stopwatch and display it on the LCD when the user press to reset the Stopwatch  So each variable of (StHrVar, StMinVar, StSecVar) equal to zero and the SW return increment each of them again. | | |
| **inputs** | StHrVar, StMinVar, StSecVar | **outputs** | StopWatch\_Displaying\_Signals |

## **System components (buttons) requirements**

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| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO3\_DGW\_SRS\_09\_V01.2 | **Covers** | Req\_PO3\_DGW\_CYRS\_07\_V01.2 |
| **Author** | Marina Medhat | **Date** | 12/2/2020 |
| **Description:** | The system has a Current\_Mode starts with zero and when mode\_button pressed by the user this variable (Current\_Mode) will increment by one and if Current\_Mode equals 3 will reset to zero again and so on. | | |
| **inputs** | Current\_Mode | **outputs** | Current\_Mode |

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| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO3\_DGW\_SRS\_10\_V01.2 | **Covers** | Req\_PO3\_DGW\_CYRS\_08\_V01 |
| **Author** | Marina Medhat | **Date** | 12/2/2020 |
| **Description:** | In case of Time-display mode The system has a SetCell starts with zero and when adjust button is pressed by the user this variable (SetCell) will increment by one and if SetCell equals 3 will reset to zero again and so on. | | |
| **inputs** | SetCell | **outputs** | SetCell |

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| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO3\_DGW\_SRS\_11\_V01.2 | **Covers** | Req\_PO3\_DGW\_CYRS\_08\_V01 |
| **Author** | Marina Medhat | **Date** | 12/2/2020 |
| **Description:** | The SW will compare the SetCell variable and If equal 0, the position on LCD will be in hours’ cell | | |
| **inputs** | SetCell | **outputs** | Time\_DiSplaying\_Signals |

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| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO3\_DGW\_SRS\_12\_V01.2 | **Covers** | Req\_PO3\_DGW\_CYRS\_08\_V01 |
| **Author** | Marina Medhat | **Date** | 12/2/2020 |
| **Description:** | The SW will compare the SetCell variable and If equal 1, the position on LCD will be in minutes’ cell. | | |
| **inputs** | SetCell | **outputs** | Time\_DiSplaying\_Signals |

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| **Req\_ID** | Req\_PO3\_DGW\_SRS\_13\_V01.2 | **Covers** | Req\_PO3\_DGW\_CYRS\_08\_V01 |
| **Author** | Marina Medhat | **Date** | 12/2/2020 |
| **Description:** | The SW will compare the SetCell variable and If equal 2, the position on LCD will be in seconds cell. | | |
| **inputs** | SetCell | **outputs** | Time\_DiSplaying\_Signals |

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| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO3\_DGW\_SRS\_14\_V01.2 | **Covers** | Req\_PO3\_DGW\_CYRS\_08\_V01 |
| **Author** | Marina Medhat | **Date** | 12/2/2020 |
| **Description:** | In case of Time-display mode the second button to increment the variable of the Current cell so the SW will check it and if this button is pressed one of these variables will increment by one (HrVar or MinVar or SecVar). | | |
| **inputs** | HrVar,MinVar,SecVar | **outputs** | Time\_DiSplaying\_Signals |

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| **Req\_ID** | Req\_PO3\_DGW\_SRS\_15\_V01.2 | **Covers** | Req\_PO3\_DGW\_CYRS\_09\_V01 |
| **Author** | Marina Medhat | **Date** | 12/2/2020 |
| **Description:** | In case of Alarm mode The system has AlSetCell starts with zero and when adjust button is pressed by the user this variable (AlSetCell) will increment by one and if AlSetCell equals 3 will reset to zero again and so on. | | |
| **inputs** | AlSetCell | **outputs** | AlSetCell |

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| **Req\_ID** | Req\_PO3\_DGW\_SRS\_16\_V01.2 | **Covers** | Req\_PO3\_DGW\_CYRS\_09\_V01 |
| **Author** | Marina Medhat | **Date** | 12/2/2020 |
| **Description:** | The SW will compare the AlSetCell variable and If equal 0, the position on LCD will be in hours’ cell. | | |
| **inputs** | AlSetCell | **outputs** | Alarm\_Displaying\_Signals |

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| **Req\_ID** | Req\_PO3\_DGW\_SRS\_17\_V01.2 | **Covers** | Req\_PO3\_DGW\_CYRS\_09\_V01 |
| **Author** | Marina Medhat | **Date** | 12/2/2020 |
| **Description:** | The SW will compare the AlSetCell variable and If equal 1, the position on LCD will be in minutes’ cell. | | |
| **inputs** | AlSetCell | **outputs** | Alarm\_Displaying\_Signals |

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| **Req\_ID** | Req\_PO3\_DGW\_SRS\_18\_V01.2 | **Covers** | Req\_PO3\_DGW\_CYRS\_09\_V01 |
| **Author** | Marina Medhat | **Date** | 12/2/2020 |
| **Description:** | The SW will compare the AlSetCell variable and If equal 2, the position on LCD will be in seconds cell. | | |
| **inputs** | AlSetCell | **outputs** | Alarm\_Displaying\_Signals |

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| **Req\_ID** | Req\_PO3\_DGW\_SRS\_19\_V01.2 | **Covers** | Req\_PO3\_DGW\_CYRS\_09\_V01 |
| **Author** | Marina Medhat | **Date** | 12/2/2020 |
| **Description:** | In case of Alarm mode the second button to increment the variable of the Current cell so the SW will check it and if this button is pressed one of these variables will increment by one (AlMinVar,AlSecVar,AlHrVar). | | |
| **inputs** | AlMinVar,AlSecVar,AlHrVar | **outputs** | Alarm\_Displaying\_Signals |

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| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO3\_DGW\_SRS\_20\_V01.2 | **Covers** | Req\_PO3\_DGW\_CYRS\_09\_V01 |
| **Author** | Marina Medhat | **Date** | 12/2/2020 |
| **Description:** | In case of Alarm mode when the Buzzer is Playing if the user press on the first button the buzzer signal will be zero. | | |
| **inputs** | Current\_Mode | **outputs** | Buzzer\_Signal |

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| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO3\_DGW\_SRS\_21\_V01.2 | **Covers** | Req\_PO3\_DGW\_CYRS\_10\_V01 |
| **Author** | Marina Medhat | **Date** | 12/2/2020 |
| **Description:** | In case of StopWatch mode, the system has a Status starts with zero and when adjust button is pressed by the user this variable (Status) will increment by one and if Status equals 3 will reset to zero again and so on. | | |
| **inputs** | Status | **outputs** | Stopwatch\_Displaying\_Signals |

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| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO3\_DGW\_SRS\_22\_V01.2 | **Covers** | Req\_PO3\_DGW\_CYRS\_10\_V01 |
| **Author** | Marina Medhat | **Date** | 12/2/2020 |
| **Description:** | The SW will compare the Status variable and If equal 0, the StopWatch starts incrementing its values (StHrVar, StMinVar, StSecVar). | | |
| **inputs** | Status | **outputs** | Stopwatch\_Displaying\_Signals |

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| **Req\_ID** | Req\_PO3\_DGW\_SRS\_23\_V01.2 | **Covers** | Req\_PO3\_DGW\_CYRS\_10\_V01 |
| **Author** | Marina Medhat | **Date** | 12/2/2020 |
| **Description:** | The SW will compare the Status variable and If equal 1, the StopWatch stop increment its values (StHrVar, StMinVar, StSecVar) and the SW saved the last values and display it on LCD. | | |
| **inputs** | Status | **outputs** | Stopwatch\_Displaying\_Signals |

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| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO3\_DGW\_SRS\_24\_V01.2 | **Covers** | Req\_PO3\_DGW\_CYRS\_10\_V01 |
| **Author** | Marina Medhat | **Date** | 12/2/2020 |
| **Description:** | The SW will compare the Status variable and If equal 2, the StopWatch resume increment its values (StHrVar, StMinVar, StSecVar). | | |
| **inputs** | Status | **outputs** | Stopwatch\_Displaying\_Signals |

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| --- | --- | --- | --- |
| **Req\_ID** | Req\_PO3\_DGW\_SRS\_25\_V01.2 | **Covers** | Req\_PO3\_DGW\_CYRS\_10\_V01 |
| **Author** | Marina Medhat | **Date** | 12/2/2020 |
| **Description:** | In case of StopWatch mode, the second button is pressed the flag=1 and the values of stopwatch will be zeros (StHrVar, StMinVar, StSecVar). | | |
| **inputs** | User press on reset button. | **outputs** | The values of stopwatch will be zeros and display zeros on LCD. |

Table 3 Reference Table

|  |  |  |
| --- | --- | --- |
| Reference Input Documents | Version | Status |
| CYRS | 1.6 | Released |