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# Introduction and functional overview

## Objective

The objective of App component is to use it to measure distance and velocity then display them on LCD.

## Context Diagram

**App**

App\_Task

## Acronyms and abbreviations

Acronyms and abbreviations that have a local scope.

|  |  |
| --- | --- |
| ***Abbreviation / Acronym:*** | ***Description:*** |
| App | Application |
| LCD | Liquid Crystal Display |
| Int | Integer |
| Char | Character |

# External interfaces

## Std\_Types.h

### Types

|  |  |
| --- | --- |
| **Name** | **Description** |
| U8 | Unsigned char |
| U16 | Unsigned short Int |
| U32 | Unsigned long Int |
| f32 | Float |
| f64 | Double |
| S8 | Short char |
| S16 | Signed short Int |
| S32 | Signed long Int |

### Interfaces

None.

### Constants

None.

### Variables

None.

## LCD.h

### Types

None.

### Interfaces

|  |  |
| --- | --- |
| Function | ***Description*** |
| LCD\_Write | This function is Used to send array to be written on the screen on the column with number Xloc and the row with number Yloc. |

### 

### Constants

None

### Variables

None

## US.h

### Types

None.

### Interfaces

|  |  |
| --- | --- |
| Function | ***Description*** |
| US\_GetDistance | This function is used the measured distance and return it. |

### Constants

None

### Variables

None

# Static Design

## File structure

### Used Files

|  |  |
| --- | --- |
| ***File*** | ***Description*** |
| App.h | This file includes all prototype of function, #defines, extern constant and types of App component. |
| App.c | This file includes all functions implementation and constant of App component. |

### File inclusion

App.h

LCD.h

App.c

OS.h

STD\_TYPES.h

## Types

### Types Definitions

#### 

|  |  |  |  |
| --- | --- | --- | --- |
| ***Name:*** | u16OldValue | | |
| ***Type:*** | u16 | | |
| ***Range:*** | 2-300 |  |  |
| ***Description:*** | It is variable has the old measured distance. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| ***Name:*** | u16NewValue | | |
| ***Type:*** | u16 | | |
| ***Range:*** | 2-300 |  |  |
| ***Description:*** | It is variable has the new measured distance. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| ***Name:*** | U32Velocity | | |
| ***Type:*** | U32 | | |
| ***Range:*** |  |  |  |
| ***Description:*** | It is variable to calculate the velocity. | | |

## Symbol Definition

None.

## Function definitions

This is a list of functions provided for upper layer modules.

### 

|  |  |  |
| --- | --- | --- |
| ***Service name:*** | App\_Task | |
| ***Syntax:*** | Void App\_Task (void); | |
| ***Service ID[hex]:*** | App\_Service\_001 | |
| ***Sync/Async:*** | Sync | |
| ***Reentrancy:*** | Non reentrant | |
| ***Parameters (in):*** | None |  |
| ***Parameters***  ***(in/out):*** | None | |
| ***Parameters (out):*** | None | |
| ***Return value:*** | None |  |
| ***Description:*** | This function is used to take the new measured distance and calculate the velocity then display it on LCD. | |

## Call-back notifications

This chapter lists all functions provided by the App module to lower layers.

App module does not provide any callback notifications.

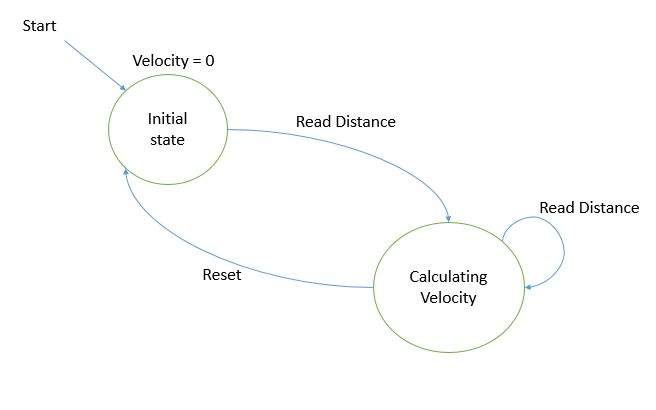
## Scheduled functions

This chapter lists all functions called directly by the Basic Software Module Scheduler.

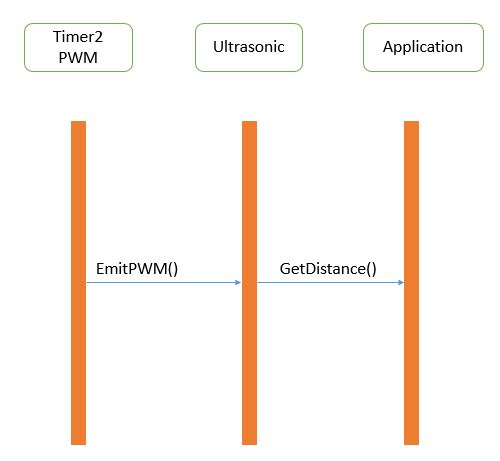
App\_task will be called by the Basic Software Module Scheduler.

# Dynamic Design

## Mode Management



## Sequence Diagram



# Shared Resources

There are no shared resources between App module and other modules.

# Configuration specification

This chapter defines configuration parameters and their clustering into containers.

## Containers and configuration parameters

The following chapters summarize all configuration parameters.

### Variants

Configuration variants describe sets of configuration parameters:

### Parameters

None.

# Configuration Constraints

None.

# Integration Constraints

App\_Task() function will be called by OS module after finishing of its periodicity time.