

EmbeddedDoxygen

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# Chapter 1

## Embedded Systems Doxygen Report - University of East Anglia

### Author

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The "Automatic Drinks Dispenser" is able to dispense two liquids into a glass with a push of a button from the Graphical Liquid Crystal Display (GLCD). Drinks are poured via air pumps connected to 4mm flexible PVC tubing. The liquids are stored in two separate plastic bottles acting as reservoirs, where a red 5mm LED is turned on when the liquid reaches a certain threshold. The LED indicates the liquid needs to be replenished, to ensure users can receive the correct amount of liquid. Once the liquid has been successfully poured, the piezo buzzer is turned on for 1 second to signal this. To protect the electronics and stored liquids against the elements, the dispenser is enclosed in 12mm thick MDF with access to the back, hiding the wires and electronics from users.

### Components Used:

- 1, GLCD Touchscreen (STM32F746NG)
- 2, 12V air pumps (PYP370-12Z)
- 1, Piezo buzzer (HYDZ)
- 2, Non contact liquid level sensors (XKC-Y25-V)
- 2, 5V Relays (SRD-05VDC-SL-C)
- 2, Red LED 5mm (L4RR5000H1D1)



## Chapter 2

# Module Index

### 2.1 Modules

Here is a list of all modules:

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## Chapter 3

# File Index

### 3.1 File List

Here is a list of all documented files with brief descriptions:

C:/Users/Yeomans/Desktop/Emedded_Doxygen/ <a href="#">main.c</a>	
Contains all core code used for the Automatic Drinks Dispenser	9



# Chapter 4

## Module Documentation

### 4.1 CORE

#### Modules

- [MAIN](#)  
*main file*

#### 4.1.1 Detailed Description

#### 4.1.2 MAIN

main file

#### Modules

- [MAIN\\_Private\\_TypesDefinitions](#)
- [MAIN\\_Private\\_Defines](#)
- [MAIN\\_Private\\_Macros](#)
- [MAIN\\_Private\\_Variables](#)
- [MAIN\\_Private\\_FunctionPrototypes](#)

#### 4.1.2.1 Detailed Description

main file

#### 4.1.2.2 **MAIN\_Private\_TypesDefinitions**

#### 4.1.2.3 **MAIN\_Private\_Defines**

#### 4.1.2.4 **MAIN\_Private\_Macros**

#### 4.1.2.5 **MAIN\_Private\_Variables**

#### 4.1.2.6 **MAIN\_Private\_FunctionPrototypes**

##### **Functions**

- void **initialisePins** (void)
- void **SystemClock\_Config** (void)
- void **wait** (int delay)
- void **introScreen** (void)
- void **menuScreen** (void)
- void **playBuzzer** ()
- void **pourWater** ()
- void **pourApple** ()
- void **pouringDrink** (int drink)
- void **checkCoordsDrinks** (int x, int y)
- int **main** (void)

##### **Variables**

- GPIO\_InitTypeDef **gpioD0**
- GPIO\_InitTypeDef **gpioD1**
- GPIO\_InitTypeDef **gpioD2**
- GPIO\_InitTypeDef **gpioD3**
- GPIO\_InitTypeDef **gpioD4**

#### 4.1.2.6.1 **Detailed Description**

# Chapter 5

## File Documentation

### 5.1 C:/Users/Yeomans/Desktop/Emedded\_Doxygen/main.c File Reference

Contains all core code used for the Automatic Drinks Dispenser.

```
#include <stdio.h>
#include <string.h>
#include "stm32f7xx_hal.h"
#include "GLCD_Config.h"
#include "Board_GLCD.h"
#include "Board_Touch.h"
#include "Board_LED.h"
```

#### Macros

- #define **wait\_delay** HAL\_Delay

#### Functions

- void **initialisePins** (void)
- void **SystemClock\_Config** (void)
- void **wait** (int delay)
- void **introScreen** (void)
- void **menuScreen** (void)
- void **playBuzzer** ()
- void **pourWater** ()
- void **pourApple** ()
- void **pouringDrink** (int drink)
- void **checkCoordsDrinks** (int x, int y)
- int **main** (void)

## Variables

- GLCD\_FONT **GLCD\_Font\_6x8**
- GLCD\_FONT **GLCD\_Font\_16x24**
- GPIO\_InitTypeDef **gpioD0**
- GPIO\_InitTypeDef **gpioD1**
- GPIO\_InitTypeDef **gpioD2**
- GPIO\_InitTypeDef **gpioD3**
- GPIO\_InitTypeDef **gpioD4**

### 5.1.1 Detailed Description

Contains all core code used for the Automatic Drinks Dispenser.

#### Author

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#### Version

V1.0

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#### Attention

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