**CODE REFERENCE DOCUMENT**

This document provides a reference for the functions used in the STM32 project with a single I2C bus and multiple slave devices. All code was developed using STM32 Cube IDE.

| **Function** | **Description** | **Parameters** | **Example Usage** |
| --- | --- | --- | --- |
| void SystemClock\_Config(void); | Configures the system clock of STM32 | None | N/A |
| static void MX\_GPIO\_Init(void); | Configures the GPIO pins of STM32 | None | N/A |
| static void MX\_ADC\_Init(void); | Configures the ADC pins of STM32 | None | N/A |
| static void MX\_I2C1\_Init(void); | Configures the I2C1 pins of STM32 | None | N/A |
| static void MX\_USART2\_UART\_Init(void); | Configures the UART pins of STM32 | None | N/A |
| void debugPrintln(UART\_HandleTypeDef \*uart\_handle, char out[]); | Sends a char array over UART and automatically adds a newline character | UART\_HandleTypeDef \*uart\_handle, char out[] | debugPrintln(&huart2, "No ACK received"); |

Descriptions:

1. **SystemClock\_Config()**: This function configures the STM32 system clock and is automatically generated and called in the main.c file when the project is built using the GUI.
2. **MX\_GPIO\_Init()**: This function configures the GPIO pins of the STM32 and is automatically generated and called in the main.c file when the project is built using the GUI and pins are chosen as GPIO.
3. **MX\_ADC\_Init()**: This function configures the ADC pins of the STM32 and is automatically generated and called in the main.c file when the project is built using the GUI and the ADC option for pins is chosen. The function can be updated by reconfiguring the pins selected.
4. **MX\_I2C1\_Init()**: This function configures the I2C1 pins of the STM32 and is automatically generated and called in the main.c file when the project is built using the GUI and the I2C1 option is selected for the pins. The function can be updated by reconfiguring the SDA and SCL pins selected. This I2C bus will be used to communicate with multiple slave devices.
5. **MX\_USART2\_UART\_Init()**: This function configures the UART pins of the STM32 and is automatically generated and called in the main.c file when the project is built using the GUI and the UART option is chosen for the pins. The function can be updated by reconfiguring the TXD and RXD pins selected.
6. **debugPrintln()**: This general-purpose function sends a char array over the UART and automatically adds a newline character after it. The parameters required are a pointer to a UART\_HandleTypeDef structure and a char array.