/\* Includes ------------------------------------------------------------------\*/

**#include** "main.h"

/\* Private includes ----------------------------------------------------------\*/

/\* USER CODE BEGIN Includes \*/

**#include** "vl53l1\_platform.h"

**#include** "VL53L1X\_api.h"

/\* USER CODE END Includes \*/

/\* Private typedef -----------------------------------------------------------\*/

/\* USER CODE BEGIN PTD \*/

/\* USER CODE END PTD \*/

/\* Private define ------------------------------------------------------------\*/

/\* USER CODE BEGIN PD \*/

**#define** **VL53L1\_\_ADDR** 0x52

**#ifdef** \_\_GNUC\_\_

**#define** **PUTCHAR\_PROTOTYPE** **int** \_\_io\_putchar(**int** ch)

**#else**

**#define** **PUTCHAR\_PROTOTYPE** **int** fputc(**int** ch, FILE \*f)

**#endif**

/\* USER CODE END PD \*/

/\* Private macro -------------------------------------------------------------\*/

/\* USER CODE BEGIN PM \*/

/\* USER CODE END PM \*/

/\* Private variables ---------------------------------------------------------\*/

**I2C\_HandleTypeDef** hi2c3;

**UART\_HandleTypeDef** huart2;

/\* USER CODE BEGIN PV \*/

/\* USER CODE END PV \*/

/\* Private function prototypes -----------------------------------------------\*/

**void** **SystemClock\_Config**(**void**);

**static** **void** **MX\_GPIO\_Init**(**void**);

**static** **void** **MX\_I2C3\_Init**(**void**);

**static** **void** **MX\_USART2\_UART\_Init**(**void**);

/\* USER CODE BEGIN PFP \*/

/\* USER CODE END PFP \*/

/\* Private user code ---------------------------------------------------------\*/

/\* USER CODE BEGIN 0 \*/

PUTCHAR\_PROTOTYPE {

**HAL\_UART\_Transmit**(&huart2, (**uint8\_t** \*)&ch, 1, HAL\_MAX\_DELAY);

**return** ch;

}

/\* USER CODE END 0 \*/

/\*\*

\* @brief The application entry point.

\* @retval int

\*/

**int** **main**(**void**)

{

/\* USER CODE BEGIN 1 \*/

/\* USER CODE END 1 \*/

/\* MCU Configuration--------------------------------------------------------\*/

/\* Reset of all peripherals, Initializes the Flash interface and the Systick. \*/

**HAL\_Init**();

/\* USER CODE BEGIN Init \*/

/\* USER CODE END Init \*/

/\* Configure the system clock \*/

**SystemClock\_Config**();

/\* USER CODE BEGIN SysInit \*/

/\* USER CODE END SysInit \*/

/\* Initialize all configured peripherals \*/

**MX\_GPIO\_Init**();

**MX\_I2C3\_Init**();

**MX\_USART2\_UART\_Init**();

/\* USER CODE BEGIN 2 \*/

**void** **I2C\_Scan**(**I2C\_HandleTypeDef** \*hi2c) {

**printf**("Scanning I2C bus...\r\n");

**for** (**uint8\_t** addr = 0x01; addr < 0x7F; addr++) {

**if** (**HAL\_I2C\_IsDeviceReady**(hi2c, addr << 1, 1, 10) == *HAL\_OK*) {

**printf**("Device found at 0x%02X\r\n", addr);

}

}

**printf**("Scan complete.\r\n");

}

**uint8\_t** initStatus = **VL53L1\_\_Init**();

**if** (initStatus != 0) {

**printf**("Erreur lors de l'initialisation du capteur ! Code erreur: %d\r\n", initStatus);

**while** (1);

}

**printf**("Capteur VL53L1X initialisé avec succès.\r\n");

**uint16\_t** distance = 0;

**uint8\_t** status;

/\* USER CODE END 2 \*/

/\* Infinite loop \*/

/\* USER CODE BEGIN WHILE \*/

**while** (1)

{

// Lecture de la distance

status = **VL53L1\_\_GetDistance**(&distance);

**if** (status == 0) {

**printf**("Distance mesurée: %d mm\r\n", distance);

} **else** {

**printf**("Erreur de lecture de la distance. Code erreur: %d\r\n", status);

}

**HAL\_Delay**(500);

/\* USER CODE END WHILE \*/

/\* USER CODE BEGIN 3 \*/

}

/\* USER CODE END 3 \*/

}