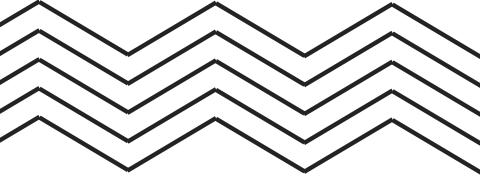


11 - déc.

20
25



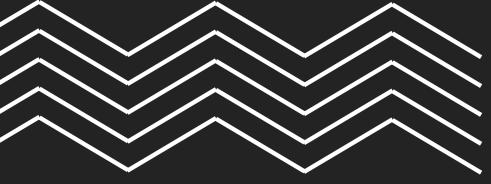
ESP32/IHM WORKSHOP



WORKSHOP⁺ OVERVIEW

Dans cet atelier, nous allons voir comment utiliser SquareLine Studio pour créer une interface tactile sur le M5Stack Core2 ou l'ESP32-S3 Touch LCD 1.46B. Nous verrons comment publier des messages vers un broker MQTT afin de contrôler une lampe connectée.





OBJECTIFS & CONTENUES



1. **M5 Stack core 2
ESP32-S3-Touch-LCD-1.46b**

2. LVGL

3. SquareLine Studio

4. Exemples

- **Push Button / Switch**
- **Connexion MQTT**



M5 STACK CORE2 & ESP32-S3-Touch

M5 Stack Core2 :

- Microcontrôleur ESP32
- Écran tactile 2.0 pouce
- **Capteurs intégrés :**
 - Gyroscope + Accéléromètre
 - Microphone + haut-parleur
 - Moteur de vibration
 - Batterie
 - WiFi + Bluetooth

ESP32-S3-Touch-LCD-1.46B

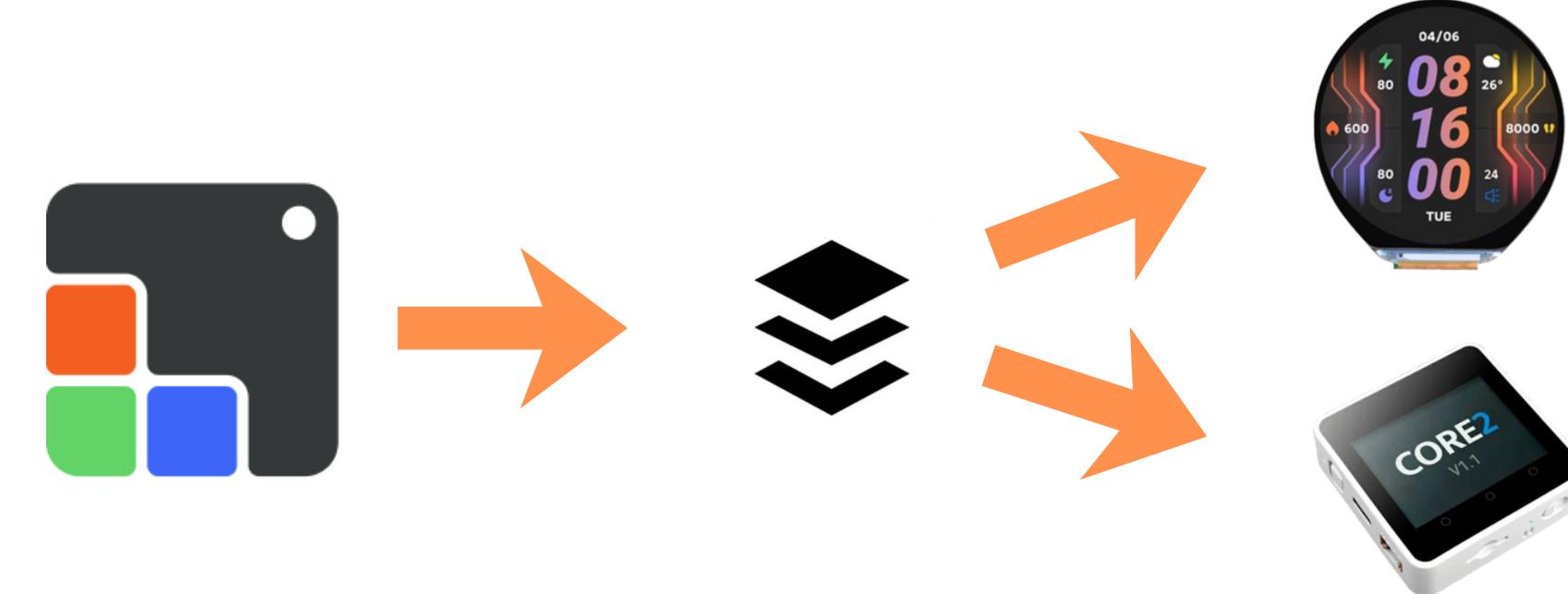
- Microcontrôleur ESP32-S3
- Écran tactile 1.46 pouce
- **Capteurs intégrés :**
 - Gyroscope + Accéléromètre
 - Microphone + haut-parleur
 - WiFi + Bluetooth (BLE 5)



LVGL

LVGL est une bibliothèque qui tourne dans ESP32, et qui fait tout le travail visuel sur l'écran.

- Dessiner des pixels
- Gérer le tactile
- Animer des objets (transitions, mouvements, effets...)
- Créer des widgets comme : bouton, slider, texte, images, graphiques, etc.



SQUARE LINE STUDIO

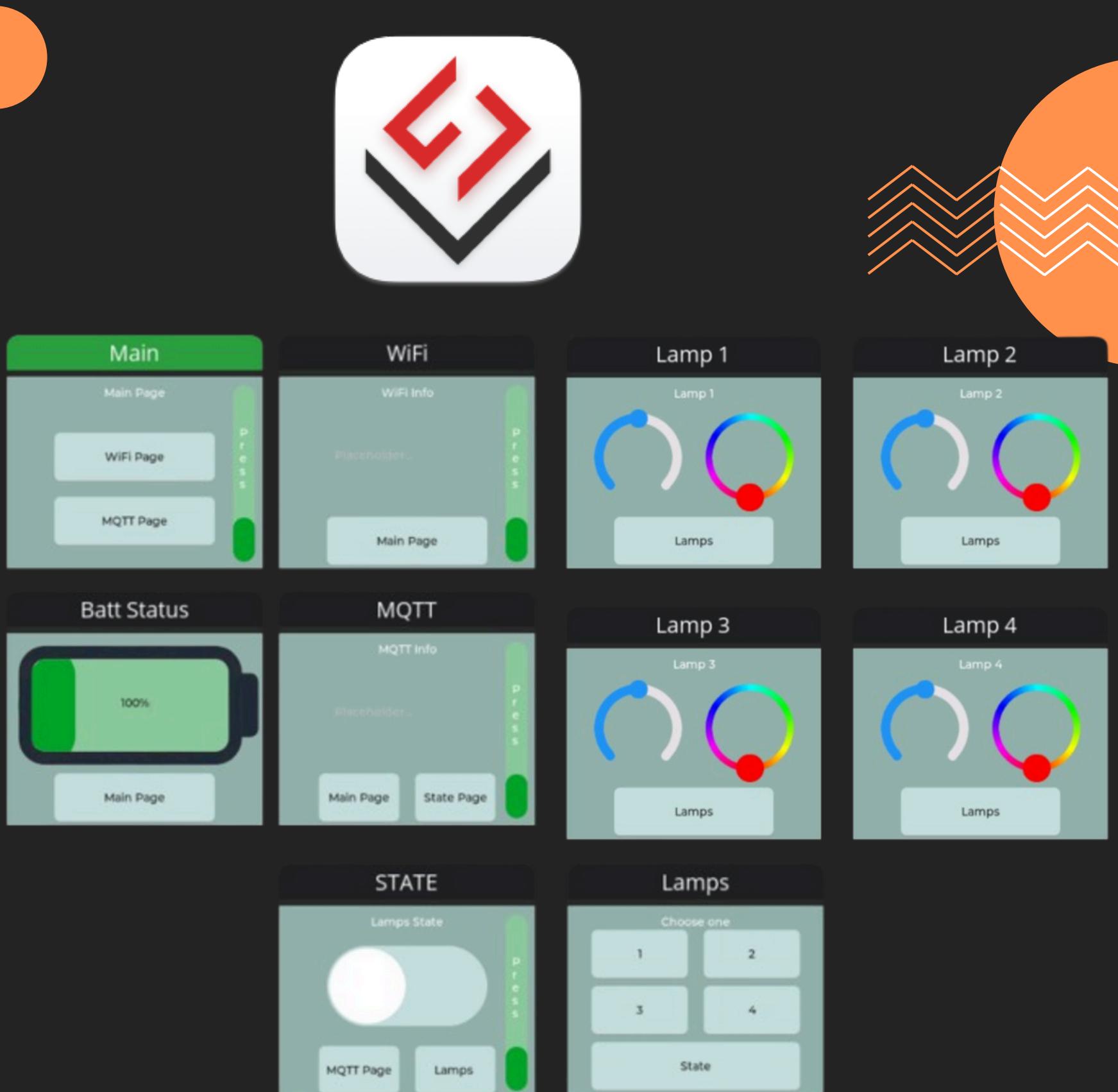
Avec SquareLine Studio, on peut créer une interface graphique de manière visuelle :

- Glisser-déposer des boutons
- Ajouter des textes / labels
- Choisir des couleurs et des styles
- Créer plusieurs pages d'interface ...

Une fois le design terminé, SquareLine exporte des fichiers tels que :

- ui.c, ui.h, ui_Screen1.c, ui_Screen1.h, etc .

Tous ces fichiers contiennent du code LVGL.



Pré-requis

Liste des bibliothèques

1. M5Core2 by M5Stack
2. PubSubClient by Nick O'Leary (v 2.8)
3. ESP32-audioI2S-master by schreibfaul1 (v2.0.0)
4. lvgl by kisvegabor (v 8.3.11)

Cartes Arduino

1. esp32 by Espressif Systems (v 2.0.8) pour la M5stack core2
2. esp32 by Espressif Systems (v 3.3.0) pour la Montre ESP32-S3

Logiciels

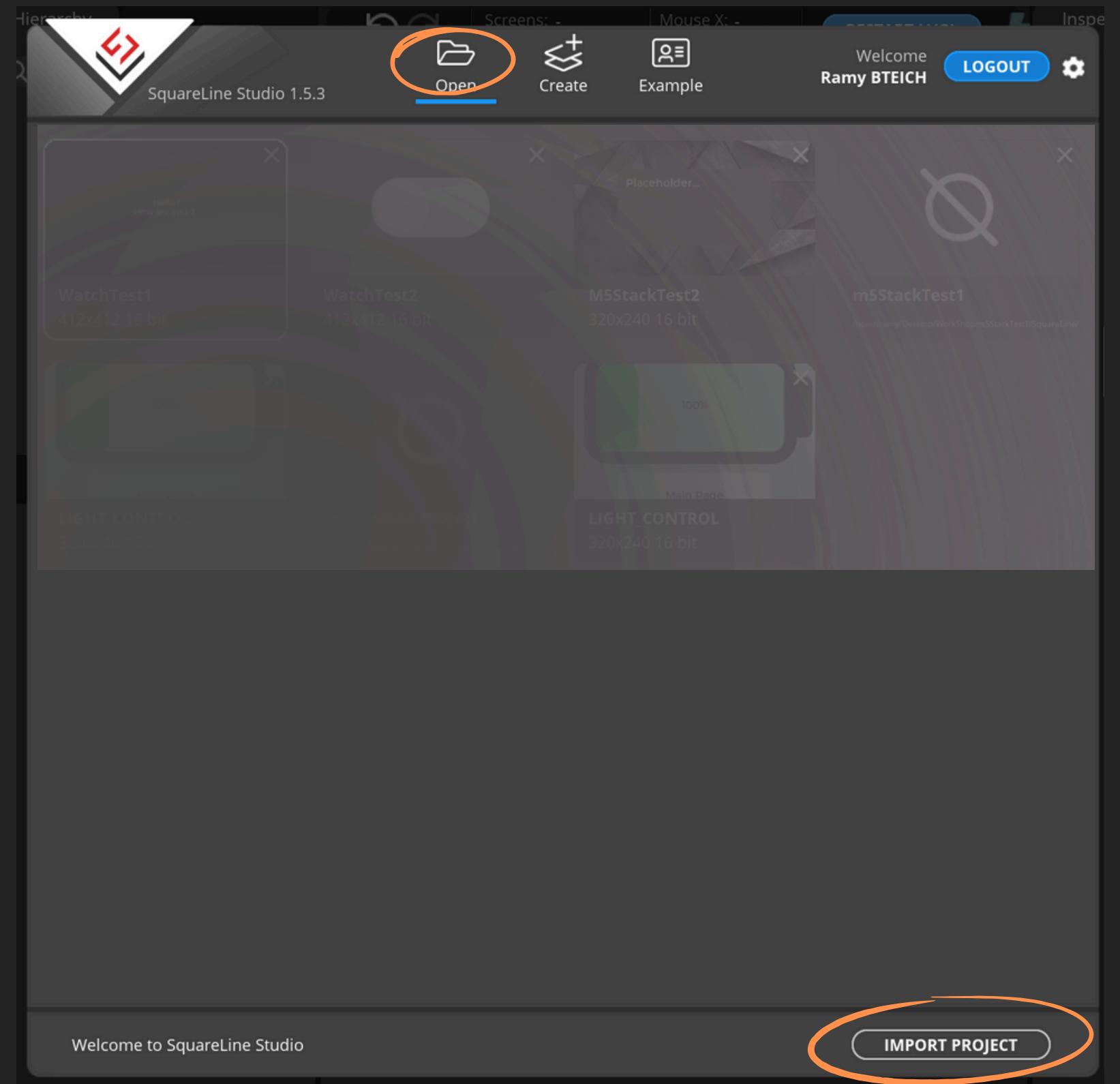
- Arduino IDE (<https://www.arduino.cc/en/software/>)
- Square Line studio (<https://squareline.io/downloads#lastRelease>)
- MQTT Explorer (<https://mqtt-explorer.com/>)



<https://github.com/RamyBteich/Workshop-esp32-IHM.git>



! EXEMPLES
C'est parti !



M5 STACK TEST 1

ramy Desktop WorkShop Workshop-esp32-IHM m5StackTest1

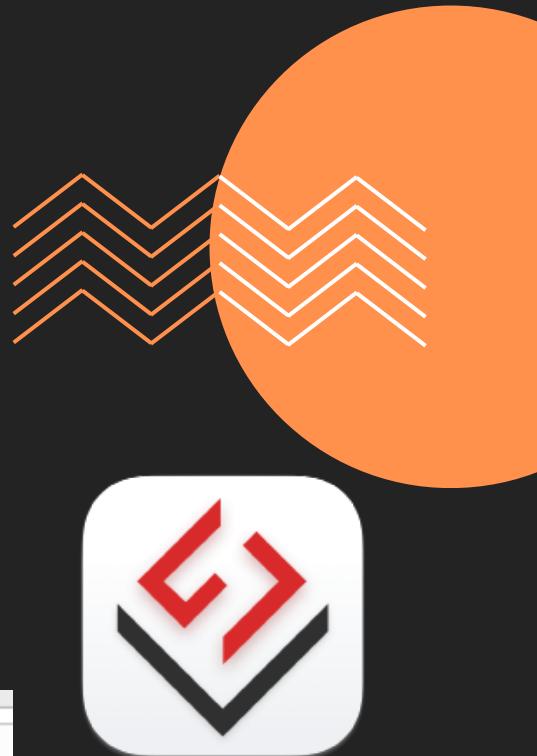
Name

- m5StackTest1
- SquareLine

ramy Desktop WorkShop Workshop-esp32-IHM m5StackTest1 SquareLine >

Name

- assets
- backup
- cache
- components
- m5StackTest1.spj



SquareLine Studio 1.5.3

Open Create Example

Welcome Ramy BTEICH LOGOUT

Select major LVGL version: 8.3

Arduino Desktop Elecrow Espressif Makerfabs NXP Nuvoton

Raspberry Renesas ST Seeed Studio

GIGA R1 WiFi with GIGA Display Shield - Arduino-IDE

Arduino-IDE board-template for Arduino GIGA R1 WiFi with GIGA 3.97inch Display Shield

Language: C | Res.: 800 x 480 | Color: 16 | LVGL: 8.3.* v1.0.0

Arduino with TFT_eSPI

Compatible with SquareLine v1.3.0 and above. A project for Arduino IDE using TFT_eSPI library supporting many common SPI and parallel based display controllers.

Language: C | Res.: 320 x 240 | Color: 8, 16, 16 sw, 32 | LVGL: 8.3.11 v1.1.3

Welcome to SquareLine Studio

PROJECT DESCRIPTION
Enter text...

PROJECT SETTINGS

- Project name: m5_Stack_Test_1.spj
- Path: /home/ramy/Desktop/WorkShop/Wor kshop-esp32-IHM/m5StackTest1/
- Resolution: 320 240
- Rotation: 0 degree
- Offset: 0 0
- Shape: Rectangle
- Color depth: 16 bit
- LVGL version: 8.3.11
- Theme: Light
- Multilanguage: Disable

CREATE

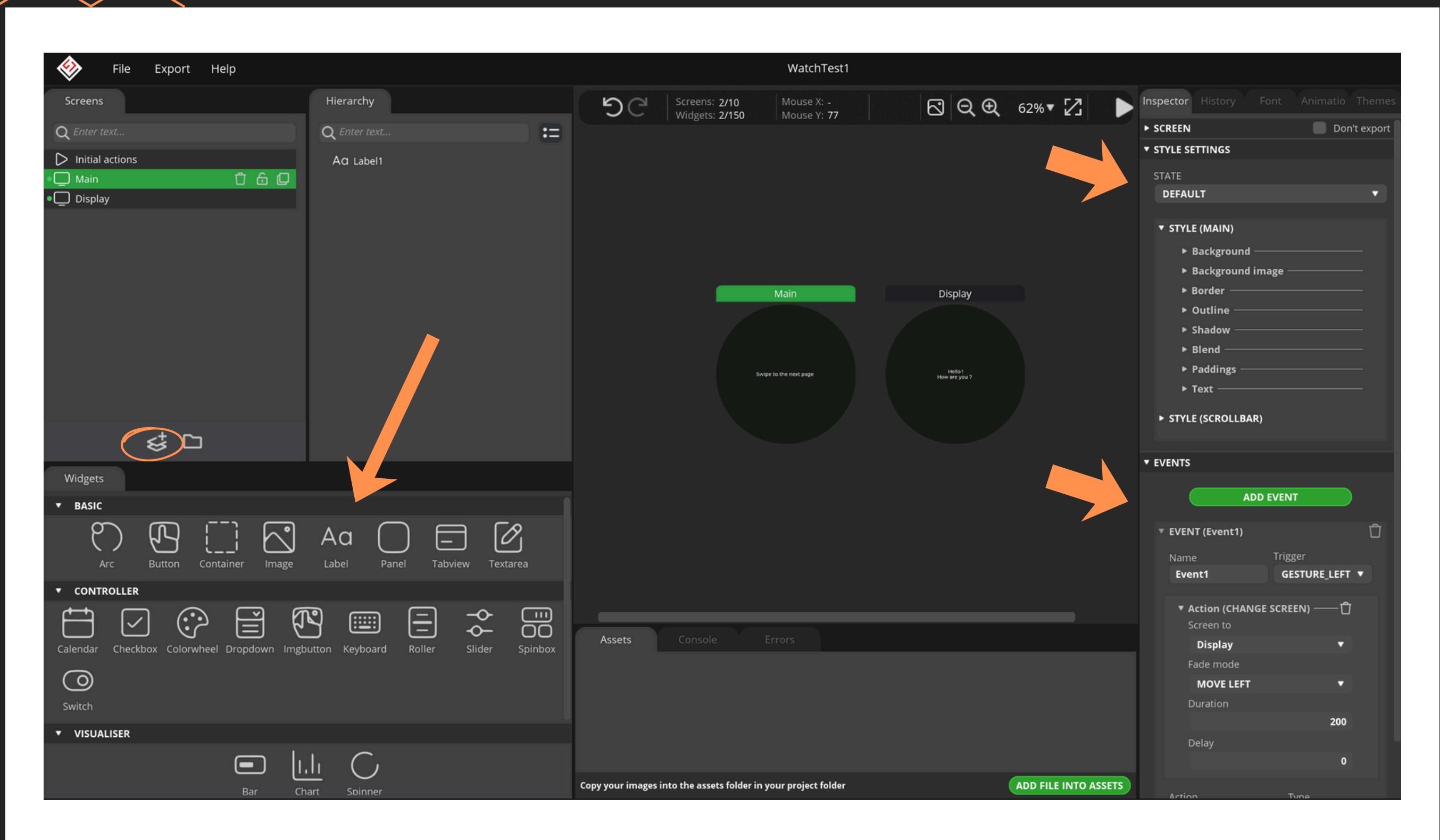
M5 STACK TEST 1



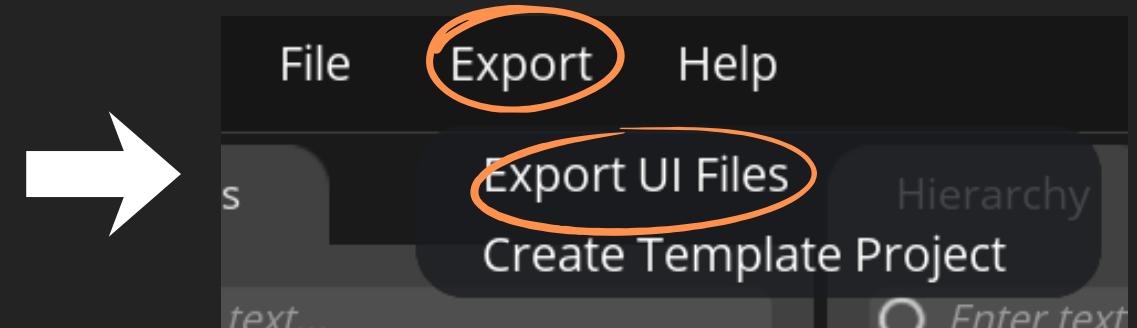
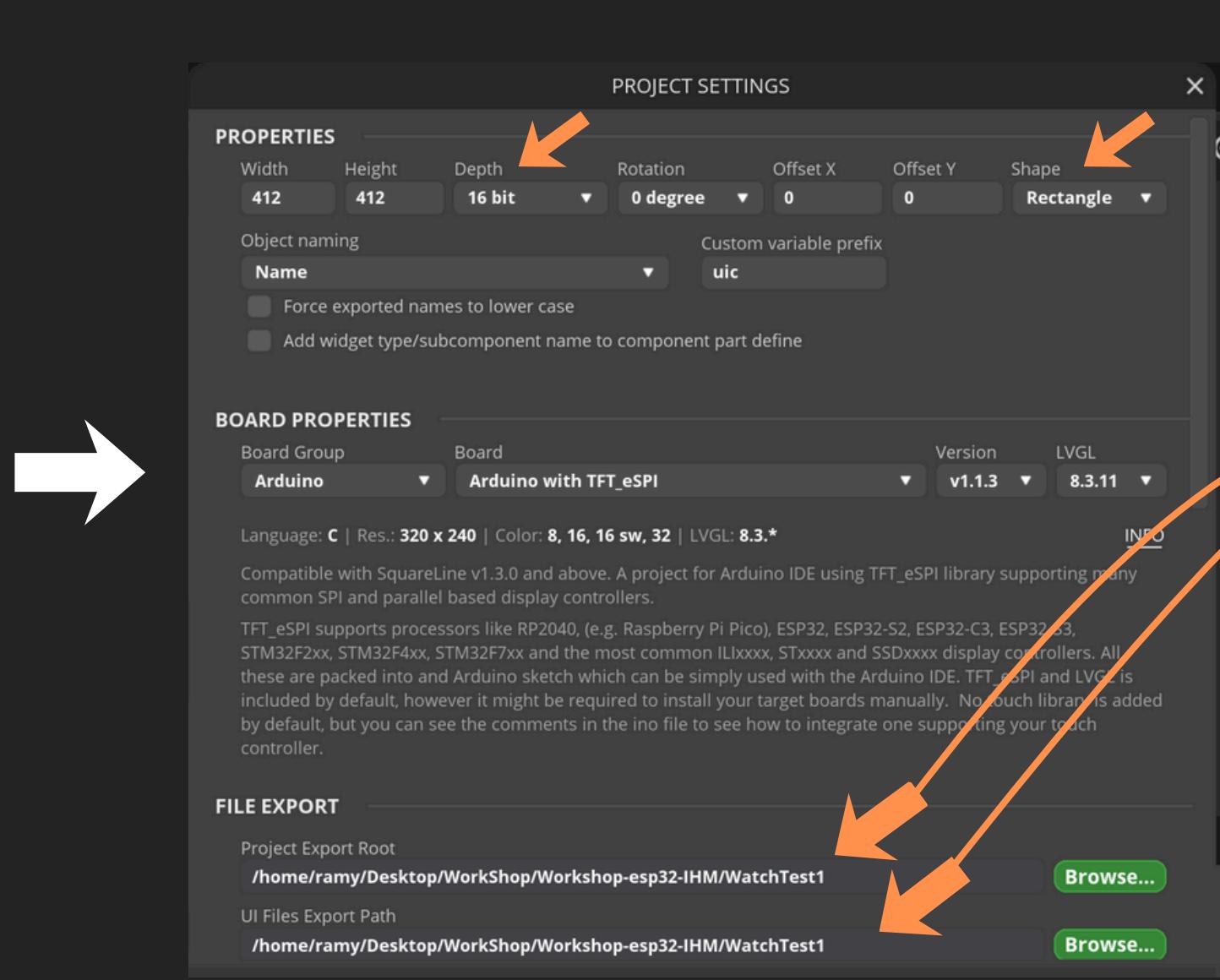
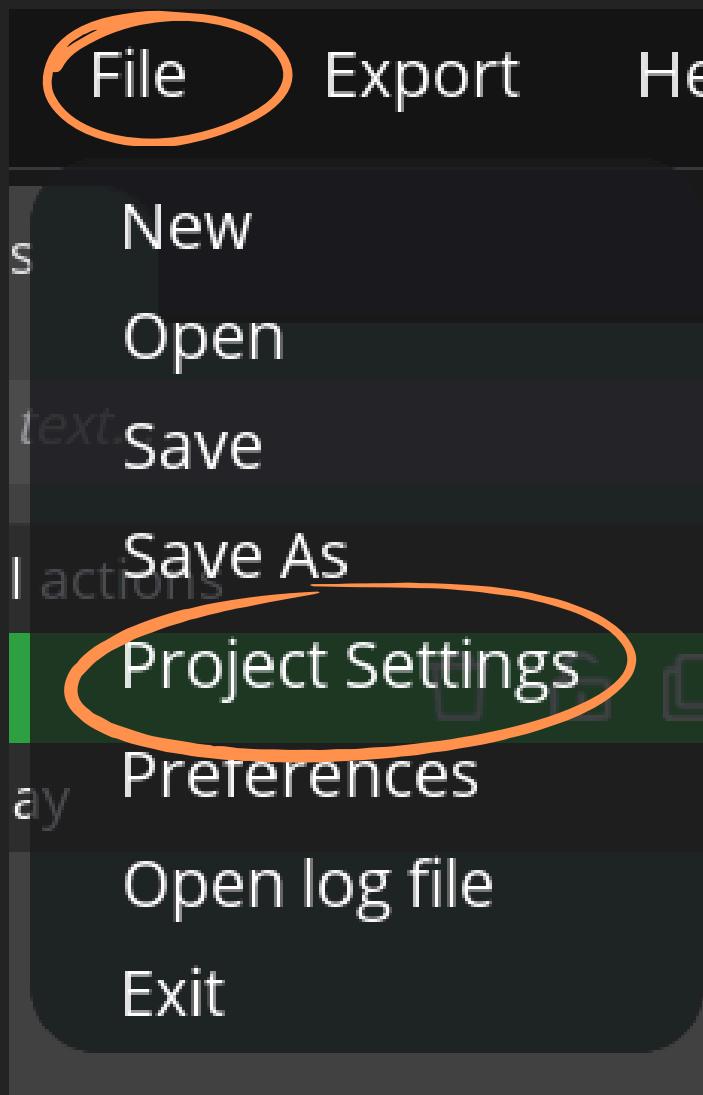
M5

STACK

TEST 1



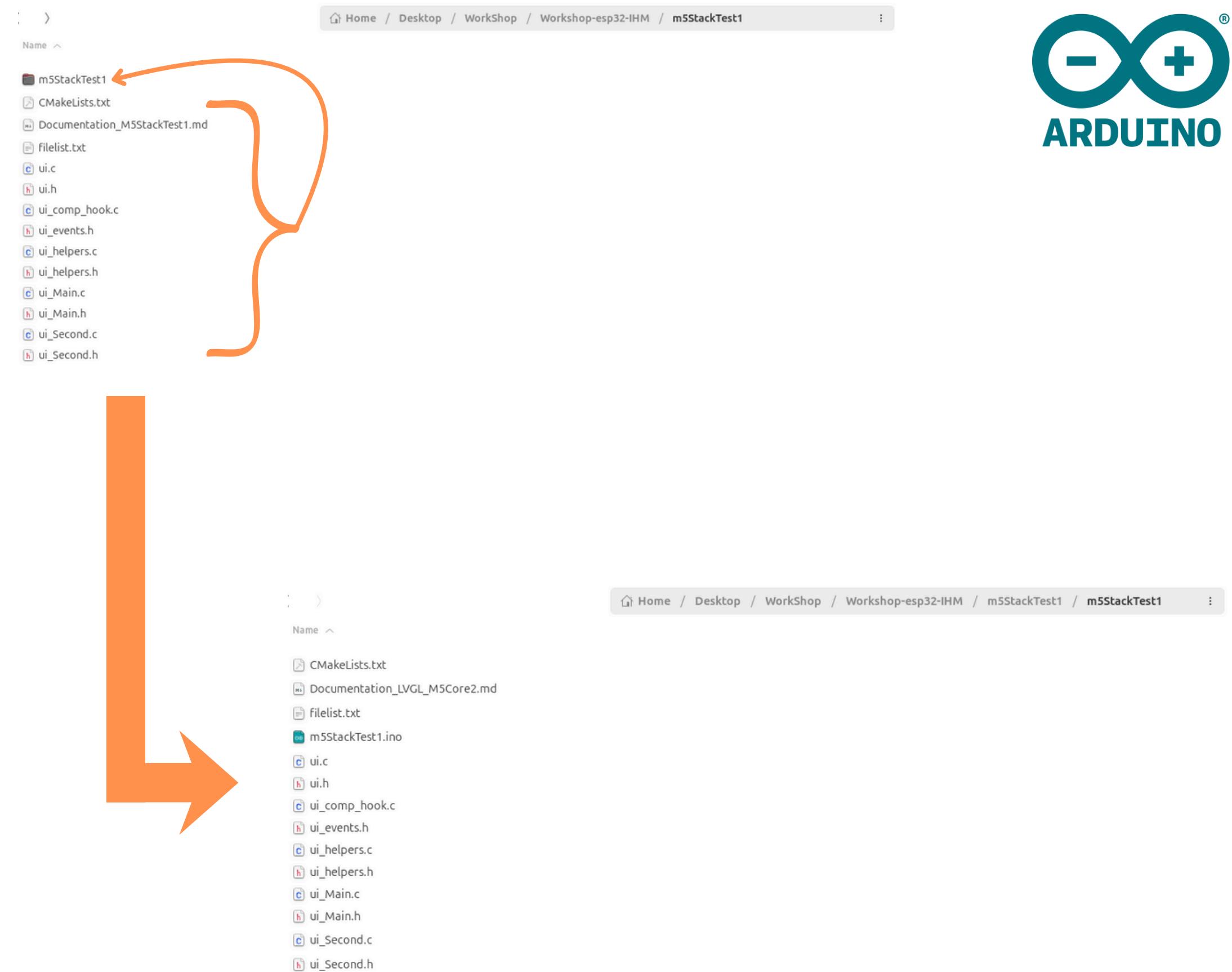
M5 STACK TEST 1



ATTENTION: Ne les exportez pas dans le même dossier que le fichier .ino d'Arduino, car cela supprimera tout et exporterà les fichiers .lvgl.

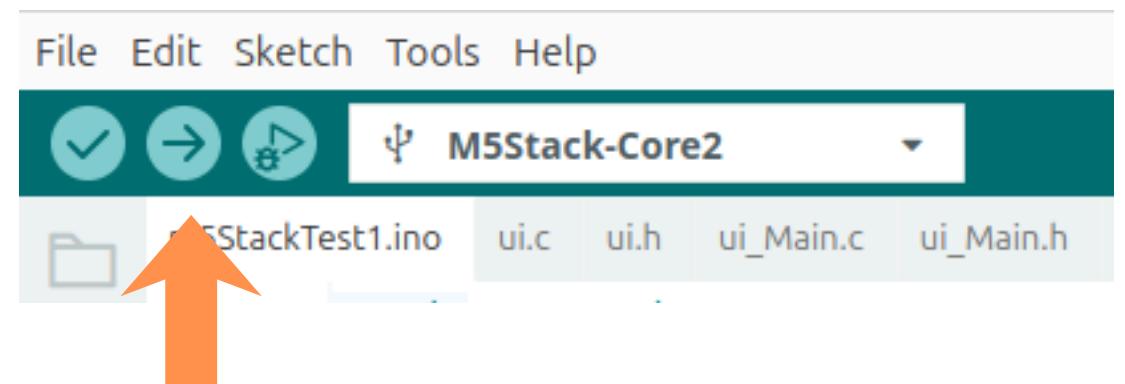
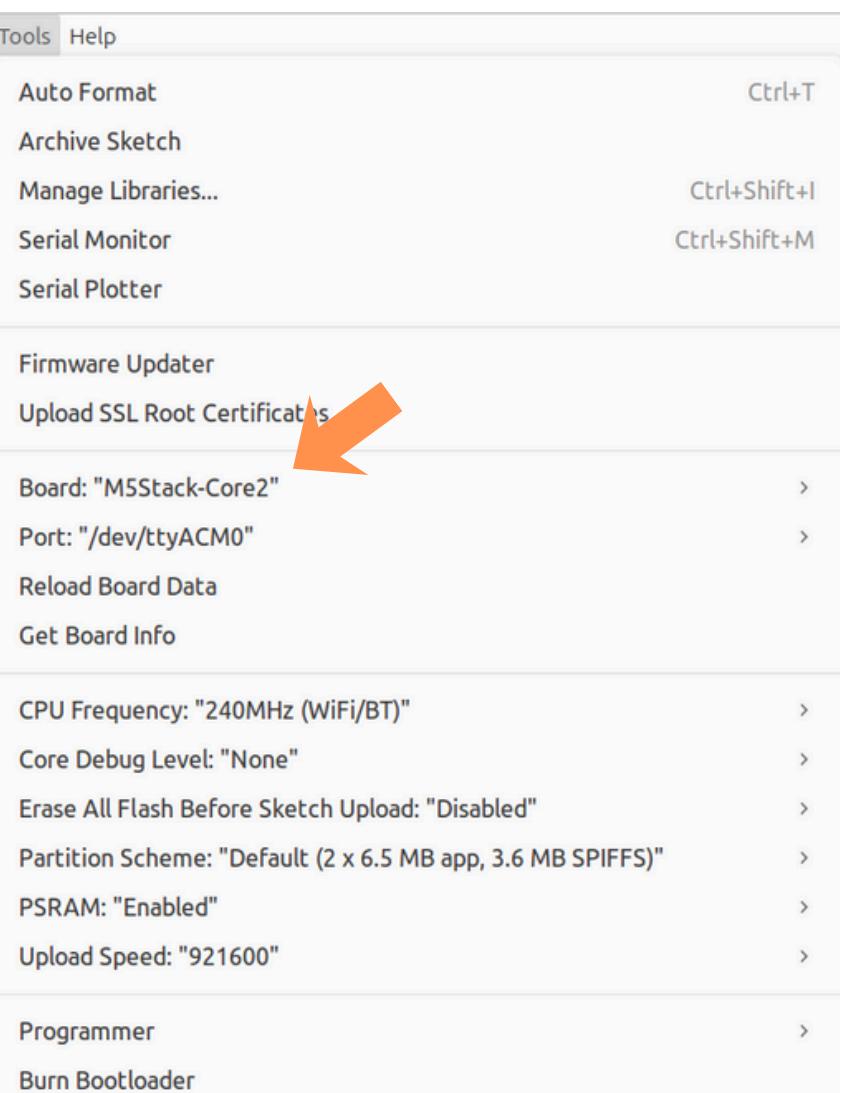


M5 STACK TEST 1





M5 STACK TEST 1



SquareLine Studio 1.5.3

Hierarchy Screens: - Mouse X: - Inspector History Font Manager Anim

Welcome Ramy BTEICH LOGOUT

Select major LVGL version: 8.3

Arduino Desktop Elecrow Espressif Makerfabs NXP Nuvoton

Raspberry Renesas ST Seeed Studio

GIGA R1 WiFi with GIGA Display Shield - Arduino-IDE INFO LICENSE

Arduino-IDE board-template for Arduino GIGA R1 WiFi with GIGA 3.97inch Display Shield

Language: C | Res.: 800 x 480 | Color: 16 | LVGL: 8.3.* v1.0.0

Arduino with TFT_eSPI INFO LICENSE

Compatible with SquareLine v1.3.0 and above. A project for Arduino IDE using TFT_eSPI library supporting many common SPI and parallel based display controllers.

Language: C | Res.: 320 x 240 | Color: 8, 16, 16 sw, 32 | LVGL: 8.3.* v1.1.3

Welcome to SquareLine Studio

Project description: STM32Fxx and the most common ILIxxxx, STxxxx and SSDxxxx display controllers. All these are packed into an Arduino sketch which can be simply used with the Arduino IDE. TFT_eSPI and LVGL is included by default, however it might be required to install your target boards manually. No touch library is added by default, but you can see the comments in the ino file to see how to integrate one supporting your touch controller.

PROJECT DESCRIPTION Enter text...

PROJECT SETTINGS

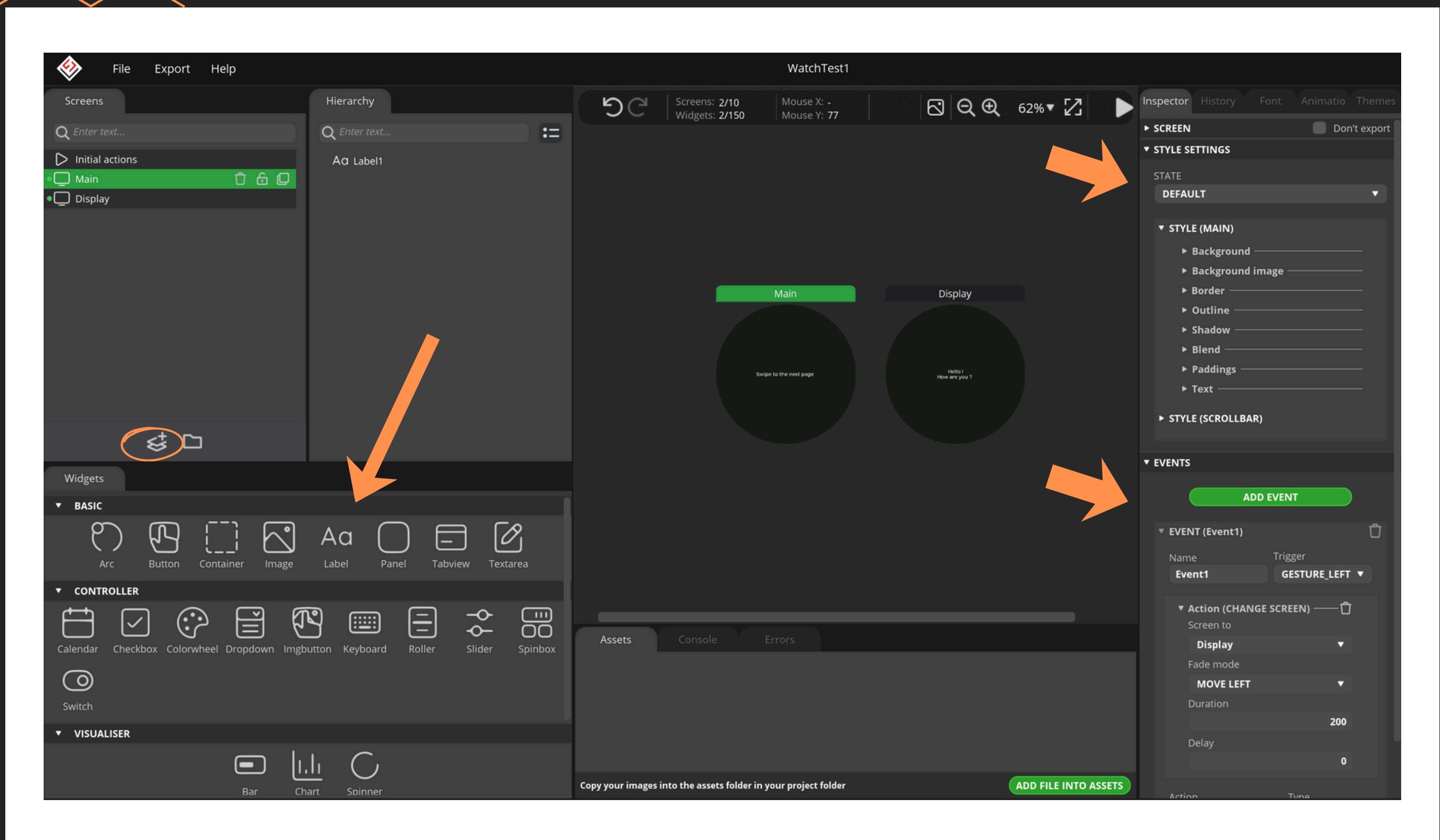
- Project name: MontreTest1.spj
- Path: /home/ramy/Desktop/WorkShop/Wor kshop-esp32-IHM/WatchTest1/
- Resolution: 412 412
- Rotation: 0 degree
- Offset: 0 0
- Shape: Circle
- Color depth: 16 bit
- LVGL version: 8.3.11
- Theme: Light
- Multilanguage: Disable

CREATE

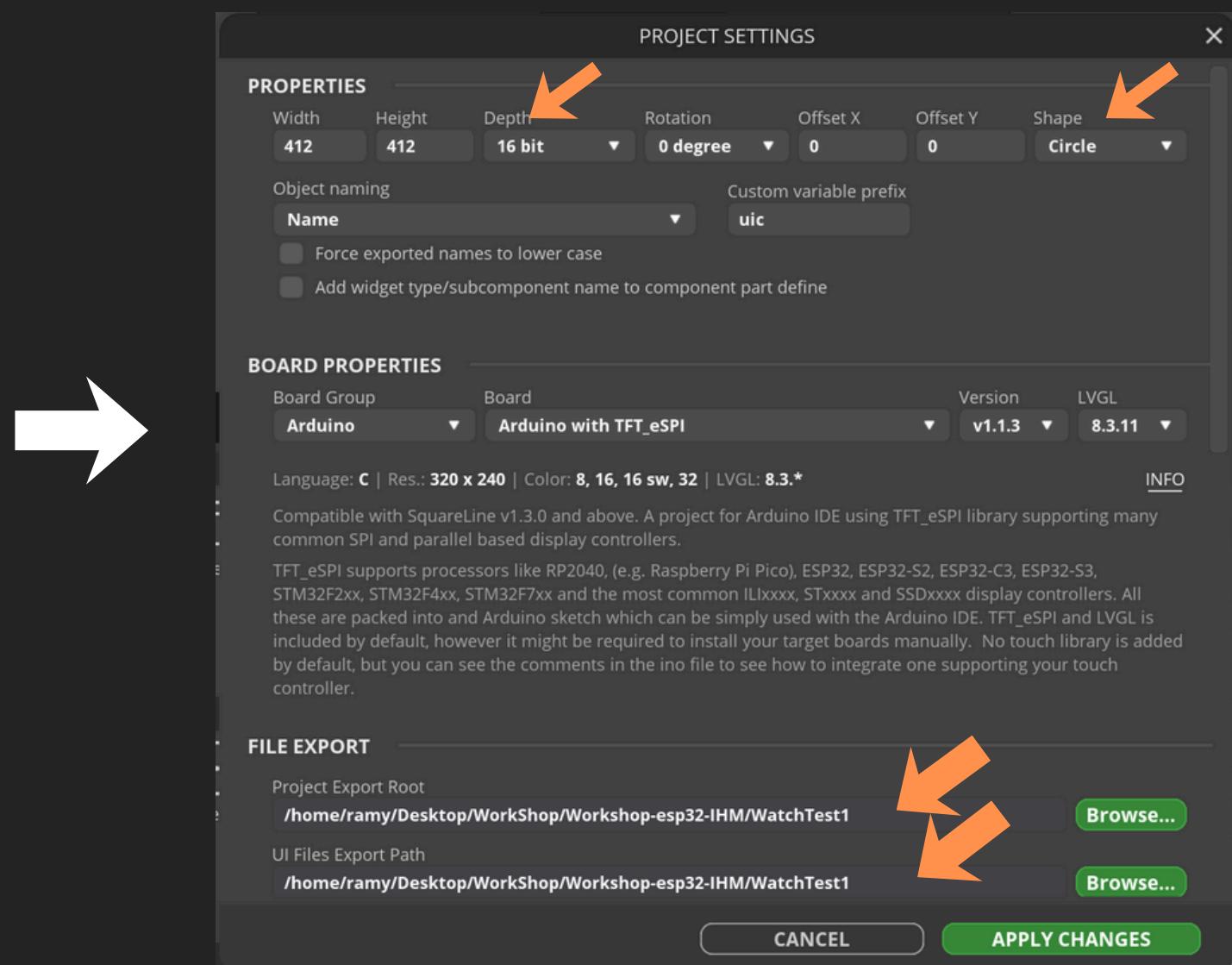
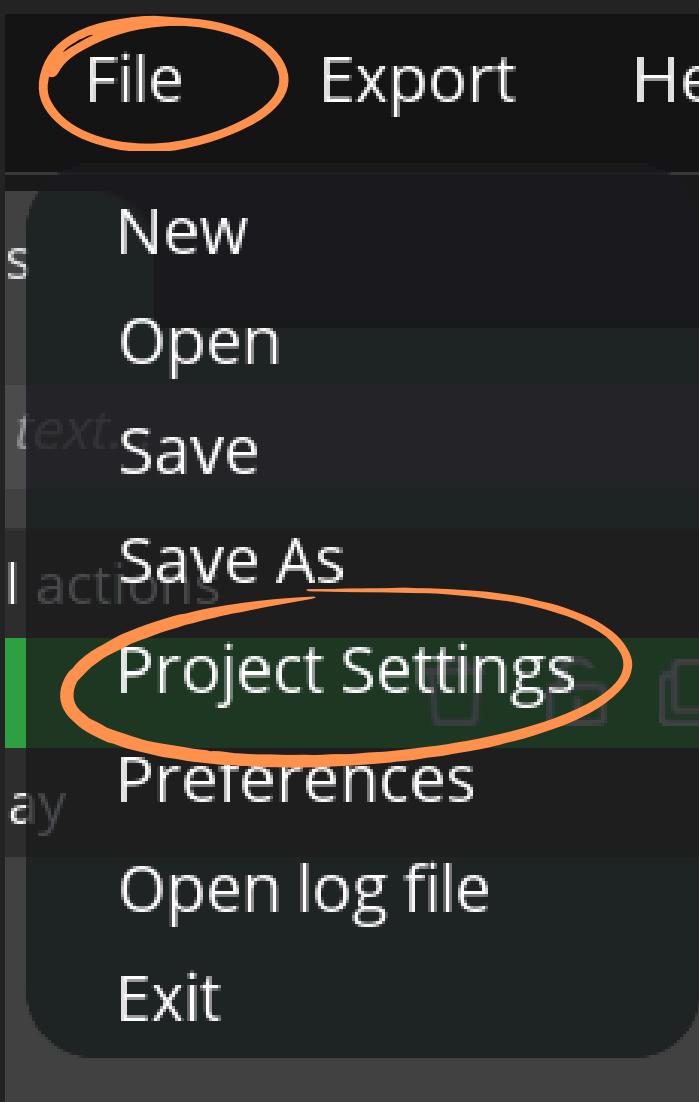
MONTRE TEST 1



MONTRE TEST 1



MONTRÉ TEST 1



MONTRE

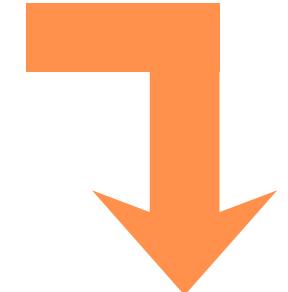
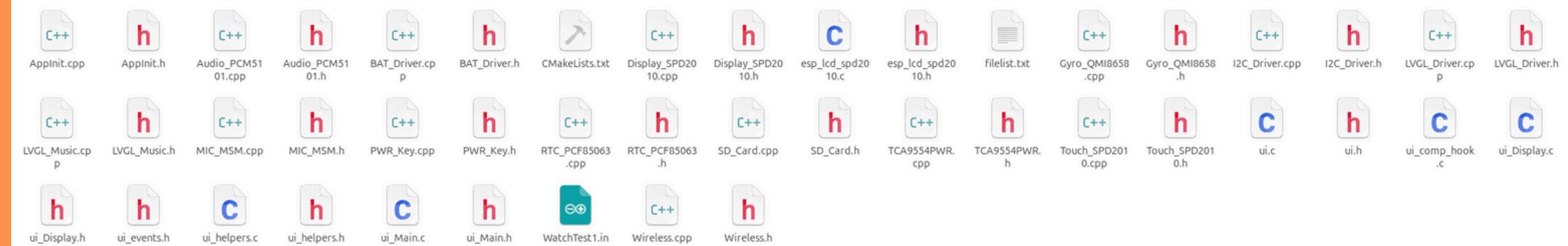
TEST 1

esp32-s3-watch drivers

- Audio_PCM5101.cpp
- Audio_PCM5101.h
- BAT_Driver.cpp
- BAT_Driver.h
- Display_SPD2010.cpp
- Display_SPD2010.h
- Driver utility.md
- esp_lcd_spd2010.c
- esp_lcd_spd2010.h
- Gyro_QMI8658.cpp
- Gyro_QMI8658.h
- I2C_Driver.cpp
- I2C_Driver.h
- LVGL_Driver.cpp
- LVGL_Driver.h
- LVGL_Music.cpp
- LVGL_Music.h
- MIC_MSM.cpp
- MIC_MSM.h
- PWR_Key.cpp
- PWR_Key.h
- RTC_PCF85063.cpp
- RTC_PCF85063.h
- SD_Card.cpp
- SD_Card.h
- TCA9554PWR.cpp
- TCA9554PWR.h
- Touch_SPD2010.cpp
- Touch_SPD2010.h
- Wireless.cpp
- Wireless.h

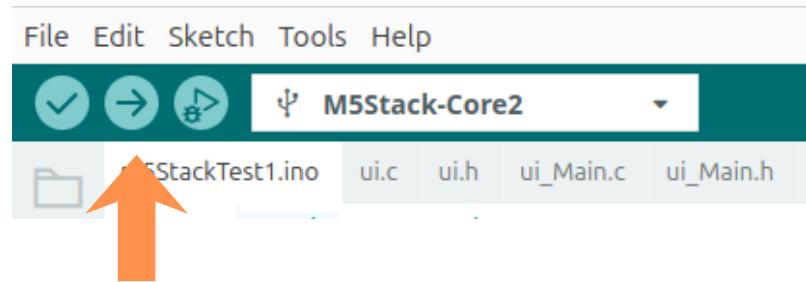
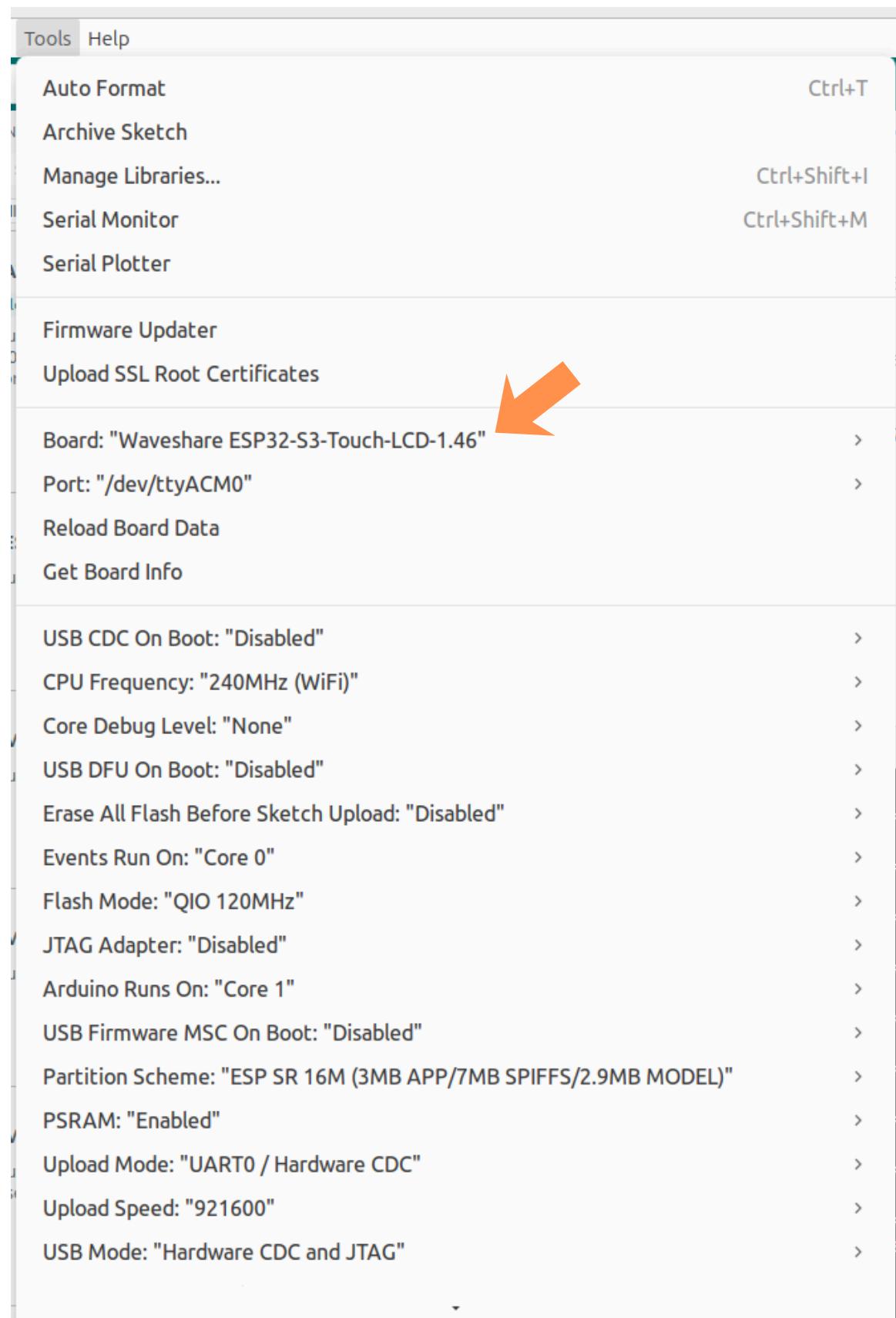
WatchTest1

- SquareLine
- WatchTest1
- CMakeLists.txt
- filelist.txt
- ui.c
- ui.h
- ui_comp_hook.c
- ui_Display.c
- ui_Display.h
- ui_events.h
- ui_helpers.c
- ui_helpers.h
- ui_Main.c
- ui_Main.h



MONTRE

TEST 1





MERCI !!