

Experiment 12

Title: Inbuilt TFT Display.

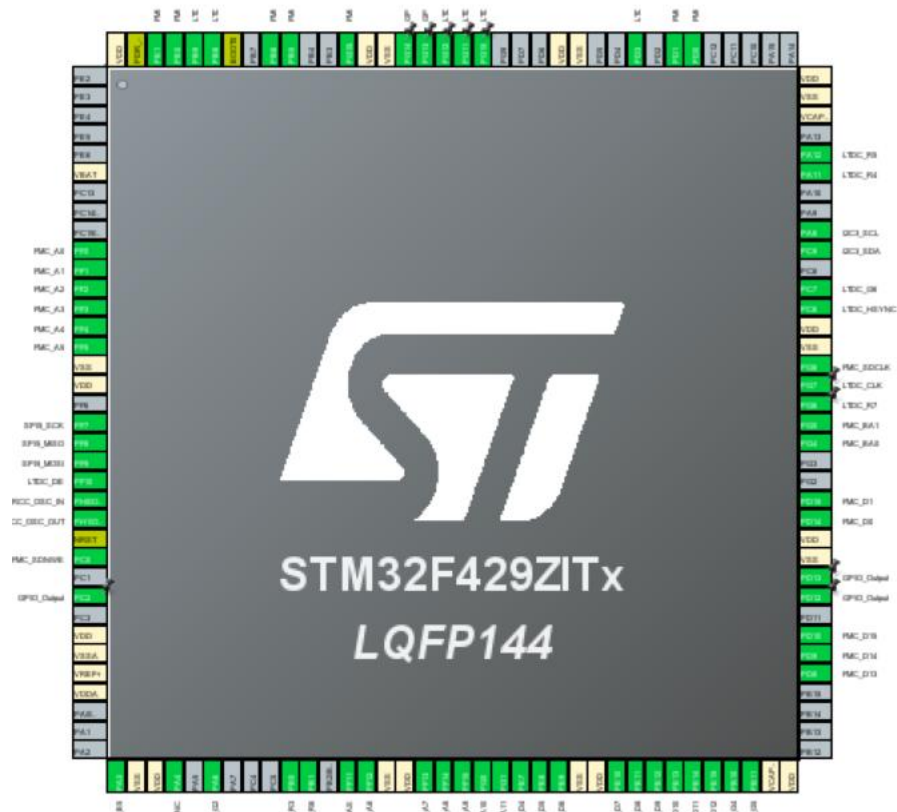
Aim: Toggling inbuilt LED's using TouchGFX and STM32CubeMX and observing the result on inbuilt TFT Display on an STM32 Microcontroller.

Tool used: Tool used for this assignment is **STM32CubeIDE** **STM32CubeMX** and **TouchGFX**.

Procedure:

1. Open TouchGFX 4.17.0 Designer Application.
2. Click on Create new option/tab and select STM32F429I Discovery Board and click on create again.
3. Click on box from all widget's menu.
4. Place the box inside the rectangular section.
5. Go to buttons and click on Toggle button.
6. Go to interactions and click on trigger and select button is clicked.
7. Give function name as per user.
8. Select PG13 and PG14 pins as GPIO output from CubeMX and generate code.
9. Go back to TouchGFX and save the project and run simulator.
10. In the Screen1 View add the desired code for toggling the LED.
11. Navigate to Screen1View.hpp and the function declaration.
12. Before Building the project click on refresh.
13. Go to Project-> Build Project.
14. Connect the discovery Board and go to Run-> Run.

CubeMx pin diagram:



Code:

Screen1 View:

```
#include <gui/screen1_screen/Screen1View.hpp>
```

```
#include "stm32f4xx_hal.h"
```

```
Screen1View::Screen1View()
```

$$\{$$
$$\}$$

```
void Screen1View::setupScreen()
```

 $\{$

```
Screen1ViewBase::setupScreen();
```

```
}
```

```
void Screen1View::tearDownScreen()
{
    Screen1ViewBase::tearDownScreen();
}
```

```
void Screen1View :: Toggle_Button()
{
    HAL_GPIO_TogglePin(GPIOG,GPIO_PIN_13);
    HAL_GPIO_TogglePin(GPIOG,GPIO_PIN_14);
}
```

Screen1View.hpp:

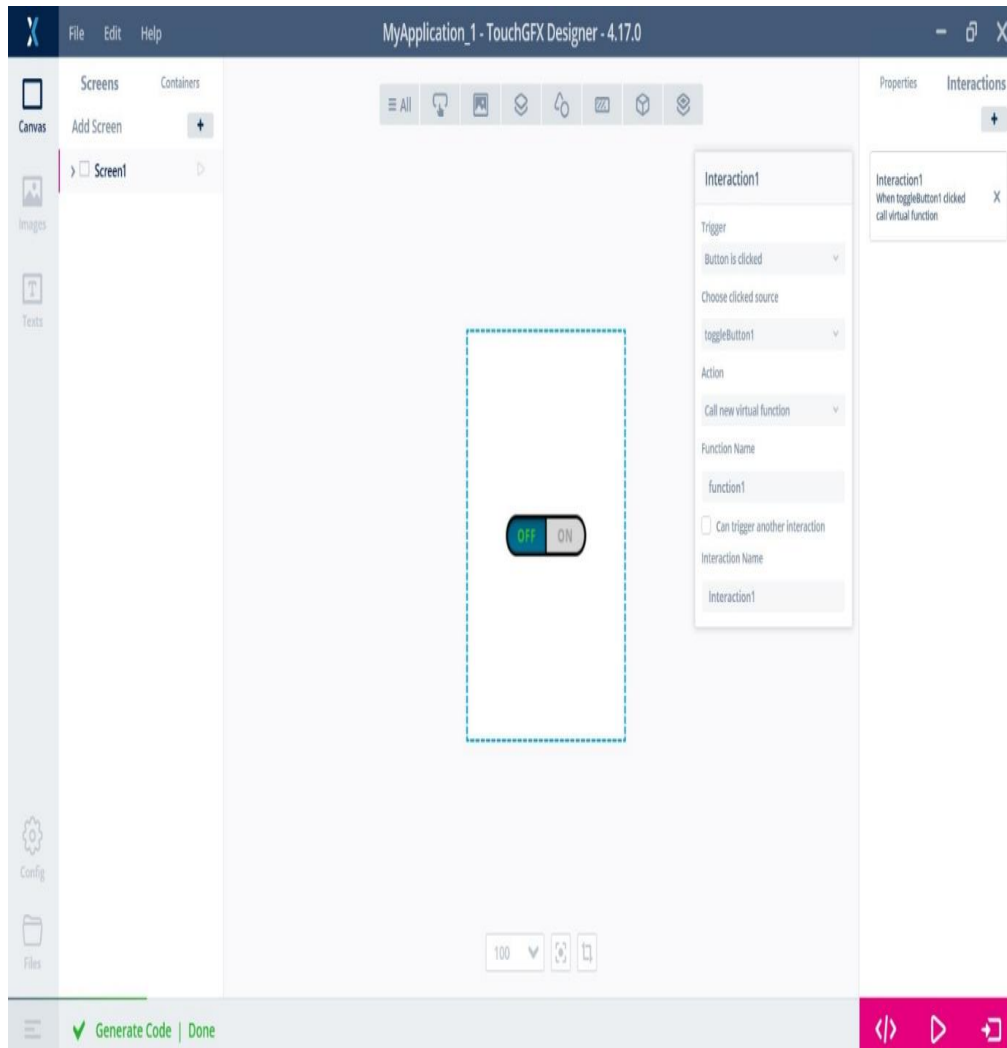
```
#ifndef SCREEN1VIEW_HPP
#define SCREEN1VIEW_HPP

#include <gui_generated/screen1_screen/Screen1ViewBase.hpp>
#include <gui/screen1_screen/Screen1Presenter.hpp>

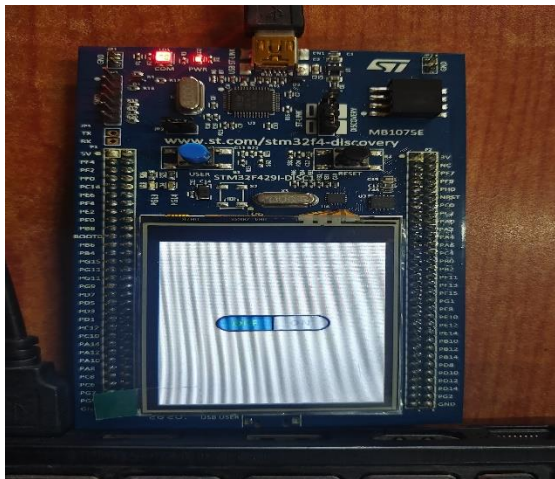
class Screen1View : public Screen1ViewBase
{
public:
    Screen1View();
    virtual ~Screen1View() {}
    virtual void setupScreen();
    virtual void tearDownScreen();
    virtual void Toggle_Button();
protected:
};
```

```
#endif // SCREEN1VIEW_HPP
```

Output:



When clicked OFF in Display



When clicked ON in display



Result:

Basic STM32Cube project for Toggling LED's PG13 and PG14 is verified using TouchGFX, STM32CubeMX and STM32CubeIDE.