

# Interfacing with Hardware Peripherals How to Guide

<b>1</b>	<b>Introduction .....</b>	<b>2</b>
<b>2</b>	<b>Prerequisites.....</b>	<b>2</b>
<b>3</b>	<b>Application overview .....</b>	<b>3</b>
<b>4</b>	<b>TouchGFX architecture .....</b>	<b>4</b>
<b>5</b>	<b>How to guide.....</b>	<b>4</b>

# 1 Introduction

This application note describes how to interact with simple hardware in TouchGFX applications.

For a more general discussion, see this article on the Help Desk:

<https://touchgfx.zendesk.com/hc/en-us/articles/205074561-Connecting-the-UI-to-your-system>

# 2 Prerequisites

To try the example in this note, you need the following:

1. TouchGFX 4.8.0 Installation
2. STM32 ST Link Utility installation
3. STM32F429I Discovery board
4. IAR or GCC
5. The Pool Demo Hardware Integration from this link:

<http://ftp.draupnergraphics.com/TouchGFX/community/PoolDemoHwInt429Disco.zip>

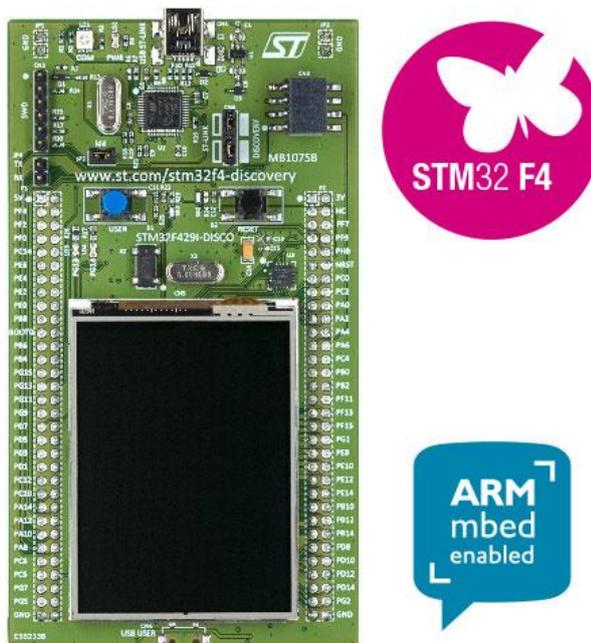
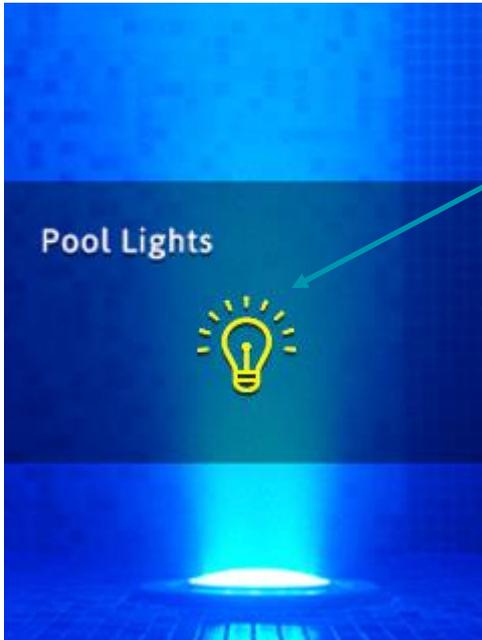


Figure 1 - STM32F429I-DISCO

### 3 Application overview

#### Main screen – Pool Light On/Off

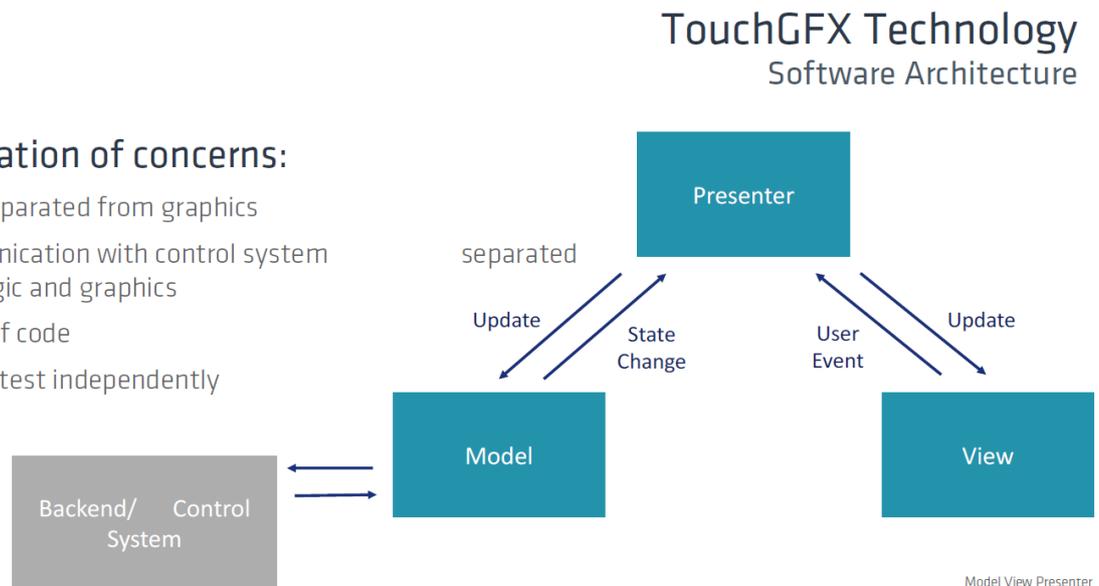


Pool Light on/Off indicator. The blue pushbutton on the board will toggle the yellow icon.

## 4 TouchGFX architecture

### Separation of concerns:

- Logic separated from graphics
- Communication with control system from logic and graphics
- Reuse of code
- Easy to test independently



### Push Button

The push button is sampled in the Model::tick() method in gui/src/model/Model.cpp. If the button is released, the light is toggled and an event is sent to the View, which hides or removes the icon on the screen. The tick method is called for every frame and is thus suitable for sampling digital I/O.

## 5 How to guide

1. In this example, we have used polled I/O, which is fine for GPIO. In other cases interrupt based IO is better (and more complicated).
2. To run the example, unzip the project into c:\TouchGFXProjects\
3. Remember to plug in the Disco board.
4. Then open the TouchGFX Environment (white hand icon) and type:
5. `$ cd /c/TouchGFXProjects/PoolDemoHwInt429`
6. `$ make -f target/ST/STM32F429I-DISCO/gcc/Makefile flash`
7. You can also open the .touchgfx file in TouchGFX Designer.
8. An IAR project file can be found here: target/ST/STM32F429I-DISCO/IAR/application.ewp