



مرکز آموزش نیرا سیستم

nirasystem.com

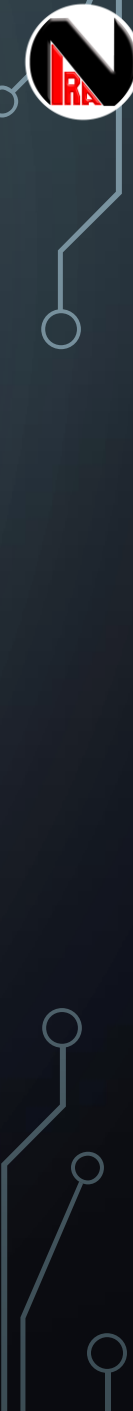
STM32 Essential

Ali Mirghasemi



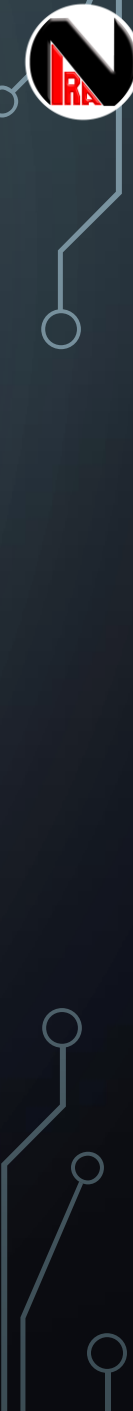
Introduction

- Embedded Systems Introduction
- ARM IDEs
- STM32F4 Introduction
- STM32CubeMX
 - RCC
- Examples
 - Hello World
 - HAL Project Structure



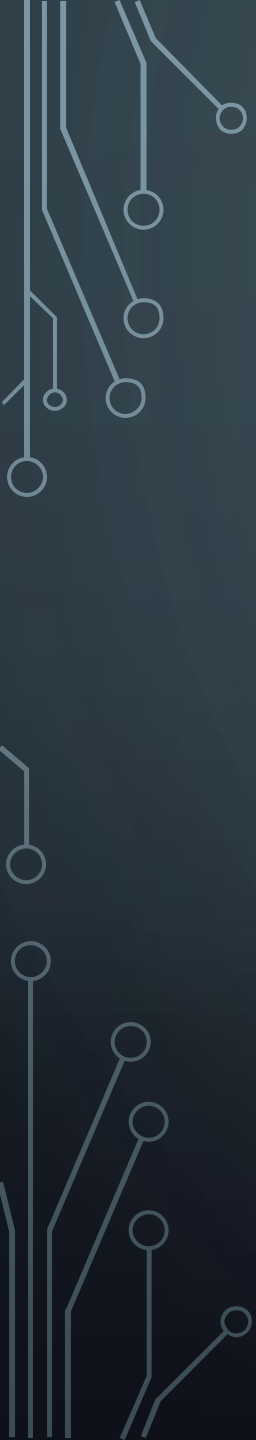
General Purpose Input/Output (GPIO)

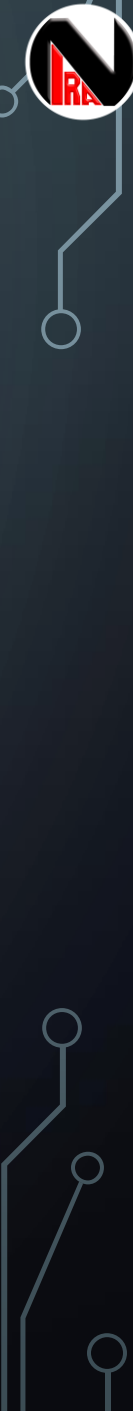
- Introduction
- Introduction - Manual
- Examples
 - Blink LED
 - Blink LED (Registry)
 - Parallel Blink LED
 - Button
 - Button (Registry)
 - Button – Non-Blocking



Interrupt

- Introduction
- Process Modes
- Priorities
- Applications
- Examples





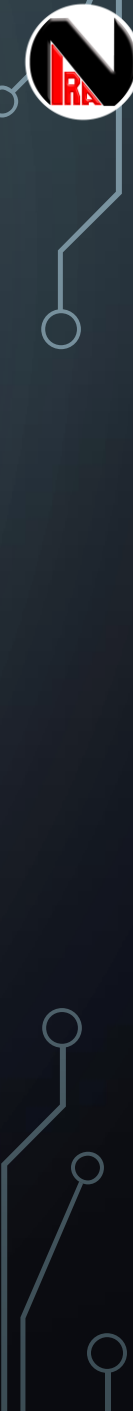
External Interrupt (EXTI)

- Introduction
- Configuration
- Applications
- Examples
 - Button



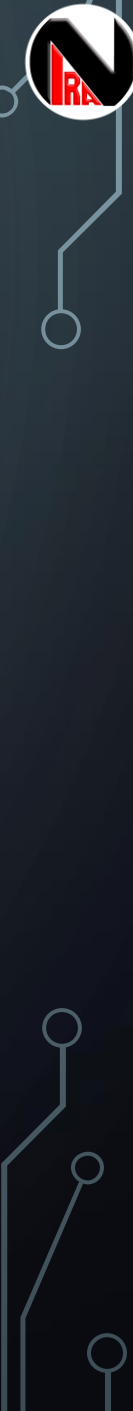
Timer (TIM)

- Introduction
- Configuration
- Formula
- Multi Tasking
- Examples
 - Led Blink
 - GPIO-SoftPWM
 - SoftPWM
 - PWM
 - PWM-CenterAligned
 - Software Delay
 - TIM Delay



ALCD

- Introduction
- Writing ALCD Library



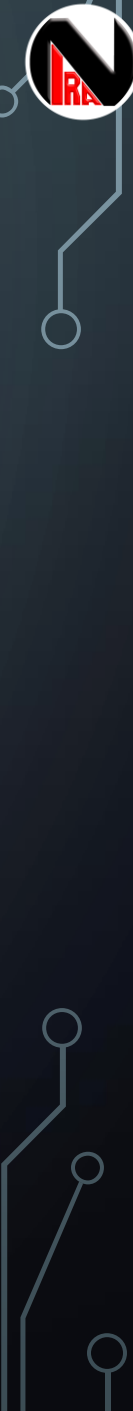
Direct Memory Access (DMA)

- Introduction
- Configurations
- Applications



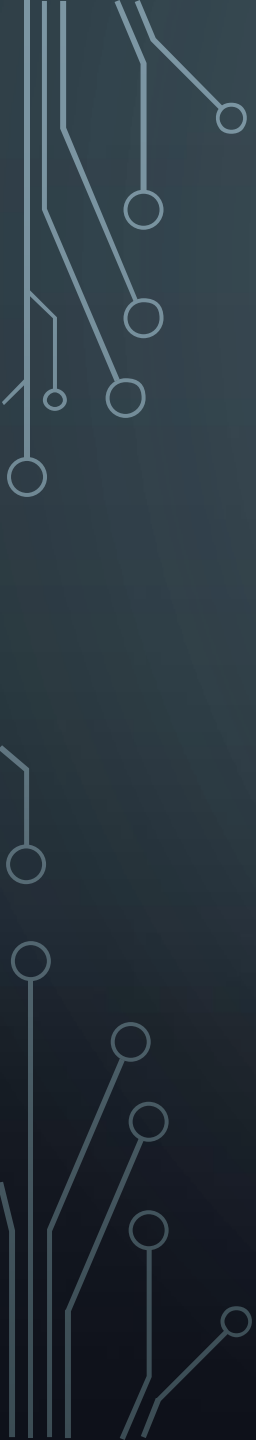
Analog to Digital Converter (ADC)

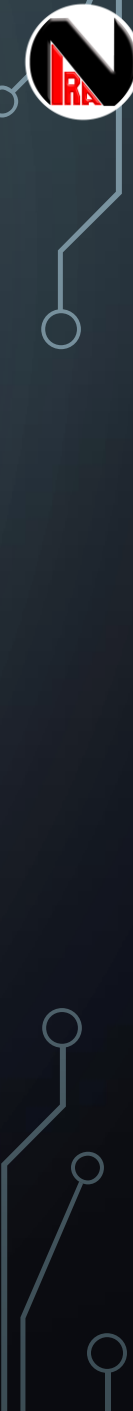
- Introduction
- Configuration
- Modes
- Applications
- Examples
 - Polling
 - Interrupt
 - DMA



Communications

- Introductions
- Categories
- Applications
- Examples





Universal Synchronous/Asynchronous Receiver and Transmitter (USART)

- Introduction
- Configuration
- Buffering Types
 - Single Buffer
 - Multi Buffer
 - Circular Buffer
- Examples
 - Echo (Polling, IT, DMA)
 - Read Line (Single Buffer, Multi Buffer, Circular Buffer)
 - Logger (Multi Buffer, Circular Buffer)
 - Binary Frame