

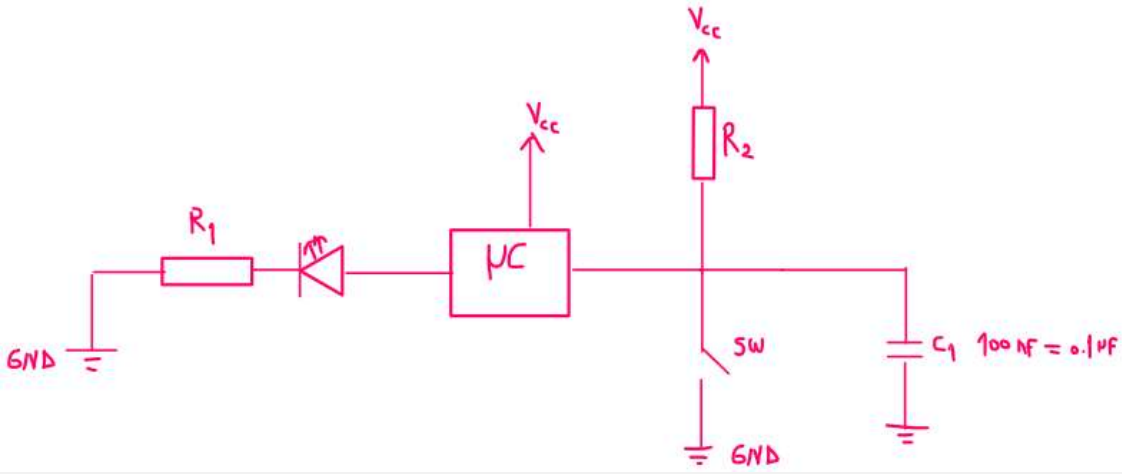
## Staj Faaliyetleri

<b>Bölüm:</b> ARGE	<b>Tarihler:</b> 25/01/2024 – 26/01/2024
<b>İş Tanımı:</b> Designing Short and Long Press Control with STM32 NUCLEO-F401RE Development Board	<b>Süre:</b> 2 Working Days
<p>The aim of this project is to write a code to control the button connected to pin 13 of port C of the STM32F401RE microcontroller on the development board NUCLEO-F401RE. It should contain the functions listed below:</p> <ul style="list-style-type: none"><li>- To switch on the LED connected to pin 5 of port A of the STM32F401RE microcontroller on the development board NUCLEO-F401RE when the button connected to pin 13 of port C of the STM32F401RE microcontroller on the development board NUCLEO-F401RE is clicked once.</li><li>- To extinguish the LED (Port A, Pin 5) when the button (Port C, Pin 13) is pressed and released for 1 second.</li></ul> <p>Firstly, I designed an algorithm and wrote some code and prepared a document and showed my work to the person in charge. And he gave me some feedback. He said that this code works, but it's not the best way to do it. If you use Hal_delay, you can hold the processor for the specified amount of time. Therefore, you must find another way to do this task without the Hal_delay function. After some research I found another way and wrote a slightly longer code and my project worked correctly.</p> <pre>103 while (1) 104 { 105     if (HAL_GPIO_ReadPin(GPIOC, GPIO_PIN_13) == 0) 106     { 107         HAL_Delay(500); 108         if (HAL_GPIO_ReadPin(GPIOC, GPIO_PIN_13) == 0) 109         { 110             HAL_Delay(500); 111             if (HAL_GPIO_ReadPin(GPIOC, GPIO_PIN_13) == 0) 112             { 113                 HAL_GPIO_WritePin(GPIOA, GPIO_PIN_5, 0); 114             } 115             else 116             { 117                 HAL_GPIO_WritePin(GPIOA, GPIO_PIN_5, 1); 118             } 119         } 120         else 121         { 122             HAL_GPIO_WritePin(GPIOA, GPIO_PIN_5, 1); 123         } 124     } 125 } 126 /* USER CODE END WHILE */ 127 128 /* USER CODE BEGIN 3 */ 129 }</pre>	
<b>Öğrencinin imzası:</b>	
<b>Yetkili personel</b>	
<b>İsim / İmza / Mühür:</b>	

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<p>To do this I used a timer and generated a periodic interrupt every 1 ms. I wrote some code in the TIM3_IRQHandler function and ran my code. And my project worked correctly. Also in this section, I use a software filter to debounce a push button. To do this, I define the filter value as 50 ms and ignore the value of the push button for the first 50 milliseconds.</p> <p>I also designed a circuit diagram for this project. it is not necessary because I only use a pushbutton and a led that finds STM32F401RE NUCLEO development board, but it is useful to design a circuit diagram.</p>	
	
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