

Day 5

## Program Task 2

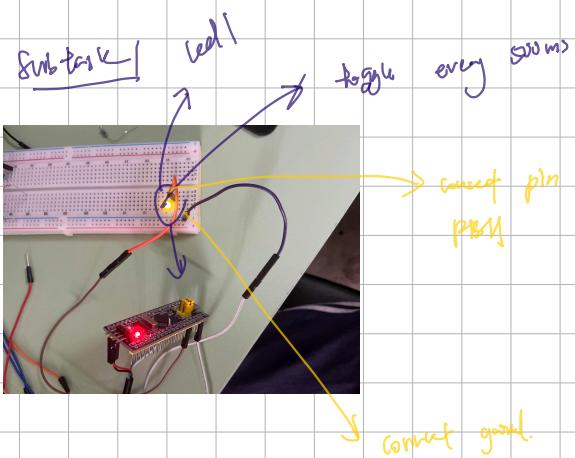


wave

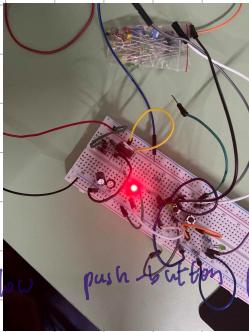
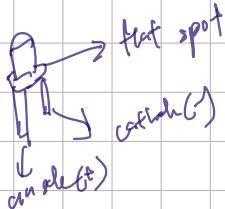
analog signal



digital signal



Make the on-board led (LED1) toggle every 500ms.



Subtask 2

make another led 2 toggle once press switch low (push button) (PB1)

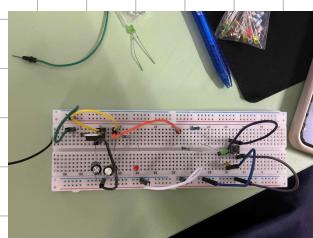
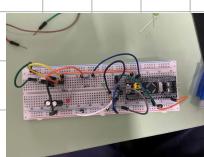
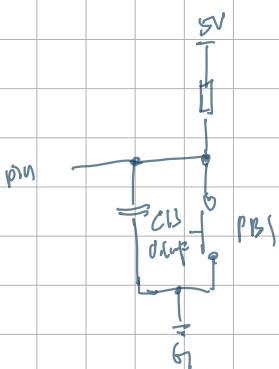
Input connection

Action low

→ when the switch is not pushed, output V will be high (5V).

pull-up resistor (4.7kΩ) is high

→ when the switch is pushed, output V shorted to the ground. Voltage is low (0V).



```

93  /* Infinite loop */
94  /* USER CODE BEGIN WHILE */
95  /* Variable to track button state */
96  int buttonPressed = 0; // State to track if PB1 has been pressed
97
98  int main(void) {
99      HAL_Init(); // Initialize HAL
100     SystemClock_Config(); // Initialize System Clock
101     MX_GPIO_Init(); // Initialize GPIO, including PB1 as input and PB0 as output for LED
102
103     while (1)
104     {
105         /* USER CODE END WHILE */
106         /* Check if PB1 (analog pin 2) is pressed */
107         if (HAL_GPIO_ReadPin(GPIOB, GPIO_PIN_2) == 0) // If button is pressed
108             HAL_Delay(500); // debounce delay to avoid multiple toggles
109         if (HAL_GPIO_ReadPin(GPIOB, GPIO_PIN_2) == 1) // If button is released
110             HAL_GPIO_TogglePin(GPIOB, GPIO_PIN_1); // Toggle LED on PB0
111         buttonPressed = !buttonPressed; // Track button as pressed
112
113         /* Select button state when PB1 is released */
114         if (HAL_GPIO_ReadPin(GPIOB, GPIO_PIN_2) == 1) // If button is released
115             buttonPressed = 0; // Reset the button pressed state
116
117     }
118
119     /* USER CODE BEGIN 3 */
120
121     /* USER CODE END 3 */
122
123 }

```

for high button  
and 2pin  
a pull-up resistor.

