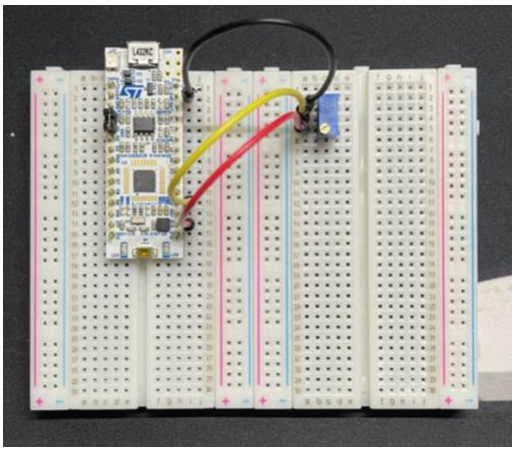
Laboratory 06– Area of Interest

Here is the screenshot of the actual board. Twisting or rotating the yellow circle in potentiometer will change the value for the voltage.



Here is the code for this laboratory modified:

```
/* Initialize all configured peripherals */
MX_GPIO_Init();
MX_USART2_UART_Init();
MX_ADC1_Init();
/* USER CODE BEGIN 2 */

HAL_ADC_Start(&hadc1);
char msg[20];
uint16_t rawValue;
float voltage;

/* USER CODE END 2 */

/* Infinite loop */
/* USER CODE BEGIN WHILE */
while (1)
{
  /* USER CODE END WHILE */

  /* USER CODE BEGIN 3 */
    HAL_ADC_PollForConversion(&hadc1, HAL_MAX_DELAY);
    rawValue = HAL_ADC_GetValue(&hadc1);
    voltage =((float)rawValue)/4095 * 3.3; // voltage = (rawVoltage/(2^bit resolution-1)*Vref)
    sprintf(msg, "rawValue: %hu\r\n", rawValue);
    HAL_UART_Transmit(&huart2, (uint8_t*) msg, strlen(msg), HAL_MAX_DELAY);
    sprintf(msg, "voltage: %f\r\n", voltage);
    HAL_UART_Transmit(&huart2, (uint8_t*) msg, strlen(msg), HAL_MAX_DELAY);
}
/* USER CODE END 3 */
```

Here is the output:

```
rawValue: 4017
voltage: 3.237143
rawValue: 4015
voltage: 3.235531
rawValue: 4013
voltage: 3.233919
rawValue: 4013
voltage: 3.233919
rawValue: 4018
voltage: 3.237949
rawValue: 4018
voltage: 3.237949
rawValue: 4018
voltage: 3.237949
rawValue: 4017
voltage: 3.237143
rawValue: 4019
voltage: 3.238755
rawValue: 4013
voltage: 3.233919
rawValue: 4016
voltage: 3.236337
```