Lab Experiment 05-B

Objectives

In the first part, you are required to implement an experiment based on Oximeter to measure and display the **arterial** oxygen level in your blood (SaO_2).

In the second part, you are required to develop a Arduino library and write a test program to test the library you developed.

Part 01-Problem Statement

You are required to implement a system to measure the oxygen level in your blood using the Oximeter (MAX 30102) and display the reading on an LCD. Also, you are required to visualize the readings on the serial plotter.

Implementation Details

- Use the following test code to visualize the measured oxygen level (in percentage (%)) on serial plotter.
  - https://drive.google.com/file/d/1aSkUpxzYUkiMpYiVcbo7NgQhfEZCWxFm/view?usp=sharing
- Oximeter theory introduction.
  - Brief Introduction
    - https://drive.google.com/file/d/1f3w_XsJsCrRvdD7oLA7jrzMMMq-810QM/view?usp=sharing
  - Detailed Introduction
    - https://drive.google.com/file/d/1KapMNwST6oh7r6DQ01N0A8s9f-PRe1Er/view?usp=sharing
- Oximeter (MAX30102) connections.

MAX30102 Pin	Arduino Pin
VIN	5V
GND	GND
SCL	A5
SDA	A4

Part 02-Problem Statement

You are required to design and implement a simple Arduino library that mimics the behavior of a specifications you write. Then, you should develop a test program to test your library.

- Resources:
  - Developing an Arduino Library
    - https://drive.google.com/file/d/1nA8xo5YUEkjzi8j7Ejs11VgZ7uAtnhMs/view?usp=sharing

Delivery Policy

- Each group must send a 20-second video for both parts with outputs shown.
- You should submit a report showing your schematic diagram and the challenges you faced (if any).
- You should submit the sketch source code (.ino file(s)) and the specification document for part-02.
- You should cite any additional resources you used.
- Further details for the submission instructions will be posted later on MS Teams.

Good Luck