



# Development of a Mo Biosignal Visualization App with Flutter

Project Management and Software Development  
for Medical Applications

## General Info

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## Project Abstract

In this project we aim to implement a mobile application that interfaces with the Explore device, a lightweight multi-channel ExG amplifier that streams data in real-time via Bluetooth. The data received from the device should be visualised on the phone as it comes in. The application will be developed with both Android and iOS in mind, using Flutter to develop for both operating systems at the same time.

## Background and Motivation

Mentalab Explore (MLX)<sup>2</sup> is a versatile, high-end solution for biomedical recordings that provides research-grade precision in a mobile format. It offers different options to automate data pipelines: Data can be streamed to a Bluetooth device for real-time applications, or recorded for later offline processing. MLX contains various sensors for the acquisition of ExG, movement and orientation data.

To really make use of the mobile format of the device, we want to offer a mobile application solution to researchers to take their experiments with them, wherever they are. An Android specific app has been developed previously, but with growing demand, we want to expand to iOS as well. To reduce the complexity of future development for both platforms, we propose to use Flutter<sup>[1]</sup> to combine the development for Android and iOS.

## Student's Tasks Description

The main goal of this project is to have an application that can run on both Android and iOS, with a focus on a well-designed and good-looking user interface.

The student will start by researching best practices for UI design for mobile devices. Then, with those best practices in mind, he/she will draft designs for the application in Figma<sup>[2]</sup>, using the existing designs for the Android app<sup>[3]</sup> as inspiration.

After the design has been approved from our side, the student will implement the design using Flutter.

The visualisation of real-time data will initially be implemented with dummy data. If time permits, the student will then implement the communication with the device via BLE.

## Technical Prerequisites

These skills are recommended for this project.

- Experience with UI Design
- Experience with Front-End Development
- Experience with developing for mobile devices
- (Ideally) Experience with Figma
- (Ideally) Experience with Flutter

## References

[1] <https://flutter.dev/>

[2] <https://www.figma.com/>

[3] <https://github.com/Mentalab-hub/explore-android-app-release>