# OpenMRS -Patient Centred Medical Record

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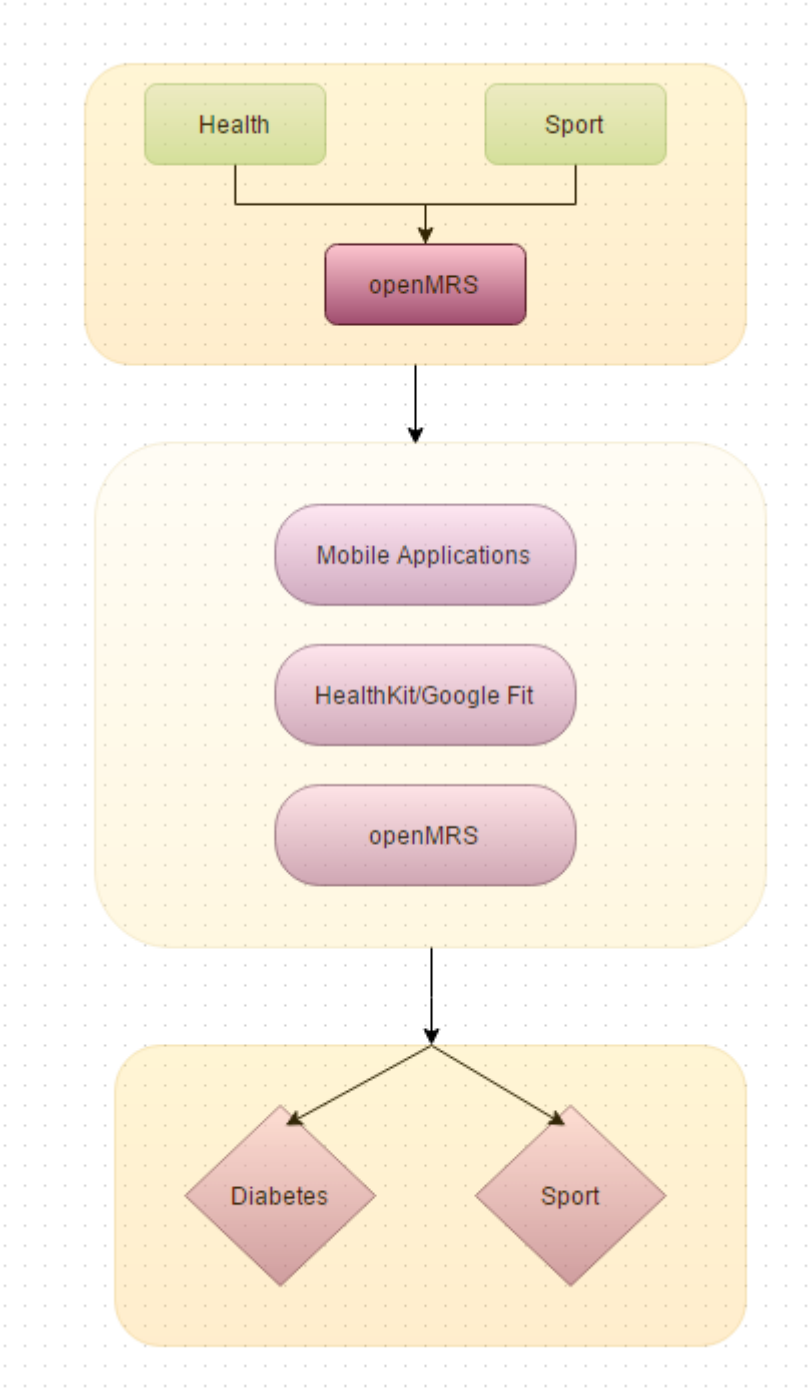
## Background

Nowadays the world is facing with pandemics of epic proportions, as millions of people are infected with diseases such as HIV, tuberculosis, malaria and many others. Prevention and treatment interventions require efficient information management which is particularly critical since this data has to be entrusted to less skilled providers. Even though we are living in a world where technology improves daily, most of the countries manage their information with spreadsheets or small, poorly designed databases whether because of time, lack of money or no access to software developers.



As a response, OpenMRS was designed as a medical record platform as a better tool for information management, reducing clusters, duplication of data. This project revolves around two main important aspects: combining both health and sport records to improve players performance and keep track of their talent growth *(OpenMRSport)*, or record the user's lifestyle and glucose/insulin levels preventing any future complications in diabetes development *(OpenMRS-Diabetes Risk Management).* **This application aims to enable users to use mobile applications that will track their vital signs via wearable devices (iOS HealthKit, Android Google Fit or Microsoft Health), keeping a record of their lifestyle as well as medical/family history. This data will then be sent to OpenMRS** (Open Medical Record System) that acts like a concept dictionary based on the principle that information should be stored in a way which makes it easy to summarize and analyse. Furthermore, the data will then be processed and analysed being accessible via a mobile application aiming to improve the user experience and making it easier to use.

## PROJECT OVERVIEW

Over the past two weeks we managed to meet our client, Prof. Philip Treleaven, and gather all the requirements regarding our future project which is intended to help diabetics patients to better manage their condition and keep it under control.

We were tasked to use OpenMRS, an open source software for online electronic medical records. OpenMRS have a modular architecture that allows developers to add modules to the existing OpenMRS system to better suit the needs of different clinics/countries that are deploying the software.

The problems that we have faced included deciding which mobile platform, applications and wearables are best to use to gather all the required data and how to synchronize them with our OpenMRS database and customise any module without affecting the rest of the system.

## SOLUTIONS AND TASKS COMPLETED

Since we have decided to work with Android development, we searched online for existing android apps that tracks all the data needed for a diabetes patient and concluded that "Diabetes:M" (link to application: https://play.google.com/store/apps/details?id=com.mydiabetes&hl=en ) offers all the required data that a diabetes app should contain, with the only downside being the user having to manually input the data. However, apart from the downside, the app allows us to export the logged data into an excel file, Dropbox and Google Drive. (see Fig.2)

Another solution that allows user to check their own blood glucose level is the Dario Smart Meter, that measures the user's blood glucose level using an ultra-thin lancet and a glucose meter which can be plugged into any smartphone's phone jack which then automatically logs the data from the meter to the Dario mobile application. However, the Dario mobile application does not have the option to export the data to Dropbox, Google Drive or as an excel sheet. (see Fig.3)

Overall, we have managed to gather and understand the requirements, download and install the OpenMRS and decide which platform and mobile applications to use.

## NEXT OBJECTIVES

As specified in the Gantt Chart, next steps include:

- looking at the data types available in Google Fit
- looking at the data types that you can save in openMRS.
- finding a data field that appears in both Google Fit and OpenMRS.
- having a very simple mobile app that, for a given user account, reads that data from Google Fit and saves it into openMRS.

## MEMBERS CONTRIBUTION

*Diana*

During the first week I have participated in the client/team meetings, gathering the project requirements, researching, understanding and getting accustomed to the platforms we are going to

use. I have managed to install and run the openMRS platform on my computer and coded a simple android mobile app that uses the Google Fit History API to get the data from GoogleFit App.

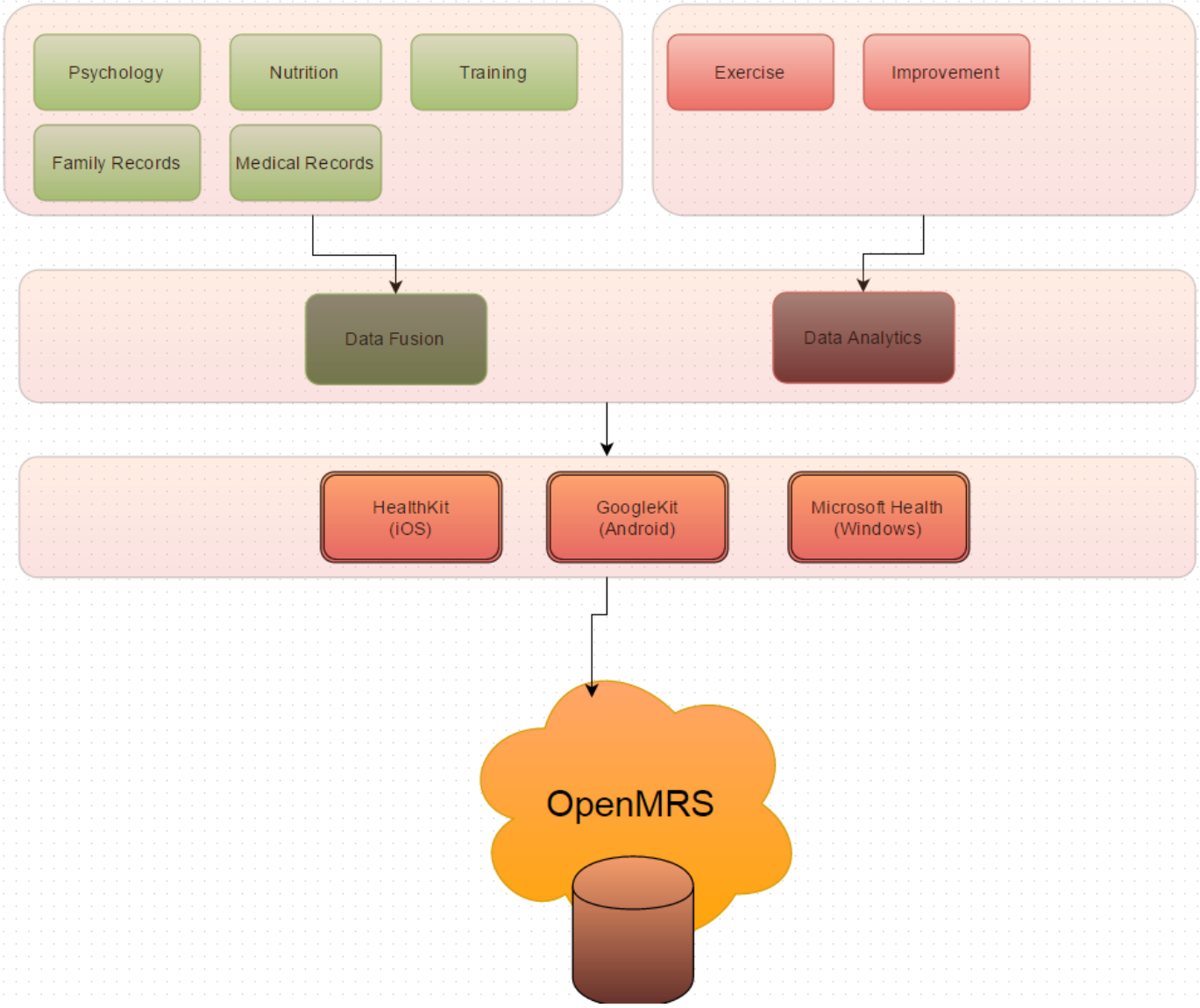
*Sam*

In the span of two weeks, I have attended two meetings with our client, getting used to the that we will be using for our project, understanding project requirements and discussed our general approach to the problem we need to solve. Also managed to play around with GoogleFit and Diabetes:M to see what kind of data we will need collect.

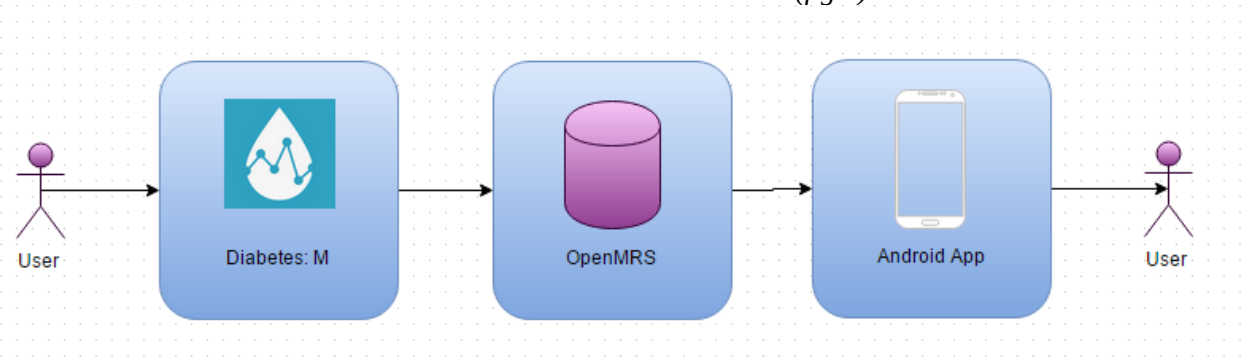
Ng, Zhi Wei Chevy

For the first two week of the project, I have attended both meeting with our client and got to know the requirement and vision for the project that we are going to work on, which is based on OpenMRS. I have also downloaded and installed the OpenMRS software on my laptop and managed to run it successfully.

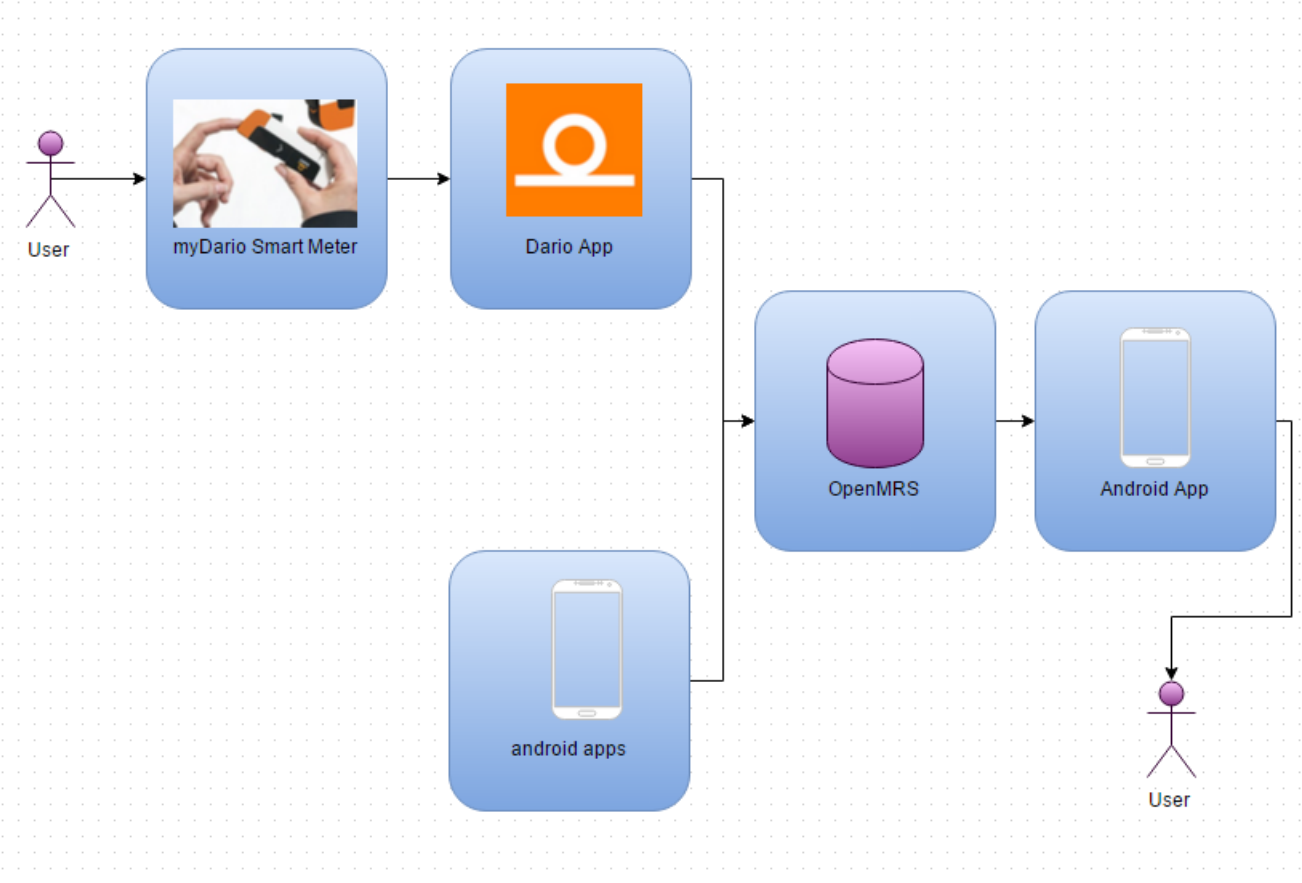
*Project Visualisation (fig 1)*



*Solution 1 - without external hardware (fig 2)*




*Solution 2 - with external hardware (fig 3)*




## Useful Links:

PowerPoint Presentation:
https://drive.google.com/file/d/0ByP9KMHpW0FIZ3U3Y0RPNnNYS3M/view?usp=sharing