Personal Health Informatics Using Sensors And Activity Trackers

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Abstract-The paper proposes to build an Android application that will be responsible for siphoning and aggregating fitness data from Google fit and Fitbit to create an integrated dashboard. We will be using Android SDKs to deduce health trends based on fitness and nutrition data extracted from these tools. This information will be streamed to a health information aggregation and analysis platform.

Keywords-Google Fit, Fitbit, Wearable devices, Healthcare

I. INTRODUCTION

Health oriented apps are application programs that offer health related services for smartphones and tablet PCs. This application is accessible to patients all time and is designed to help users to make healthy choices in their day to day life by offering fitness appraisals. This also allows doctors to keep a keen check over the activities such as steps taken, distance covered, calories burned and the heart rate of an individual on a daily basis. Both the doctor as well as the patient who is the user here can keep a record of various activities. Thereby certain medications can be followed. Here we have synced historical data from Google fit and Fitbit into our app called LifeTracker. The information obtained from this app will be stored in a centralized system based on the patient's consent. An individual may choose to share this information with his / her physicians. The physicians can analyze this information and provide better quality of care.

Related work: In the current scenario there are applications such as Google Fit and Fitbit to have a daily record of a user. Users using these application track themselves and their activities. But this data is locally stored on the device and the analyst cannot use this data to medicate the user.

Therefore, our application overcomes this drawback. The tracked data or data that user inputs into the application on his/her device is firstly stored locally. And after equal interval of time, its send to the centralized server. The data from the centralized server is secure and won'ts be lost. It can be accessed by the user as well as the designated analyst to help the person have a better living. Analyst can analyze the user and can ask the user to take precautions.

Scope: Dynamic data is handled in execution of LifeTracker. This data is segregated and displayed to the users using different graphical interface. That make its interactive for users.

Purpose: A convenient and user friendly way to display all the fitness parameters and treat patients using this data. User can take preventive measures from his recorded data.

Motivation: Various apps have been developed for tracking fitness data of users. Treating the patients from anywhere using this synced data is the foreground of this app.

II. PROPOSED FRAMEWORK

In our project, we are using data from Google fit and Fitbit. The data from Google fit and Fitbit are synced to the app and will track various activities performed by the user using wearable devices using History API. All this data is send to a centralized dynamic server. The server then sends this data to the next phase for analytics.
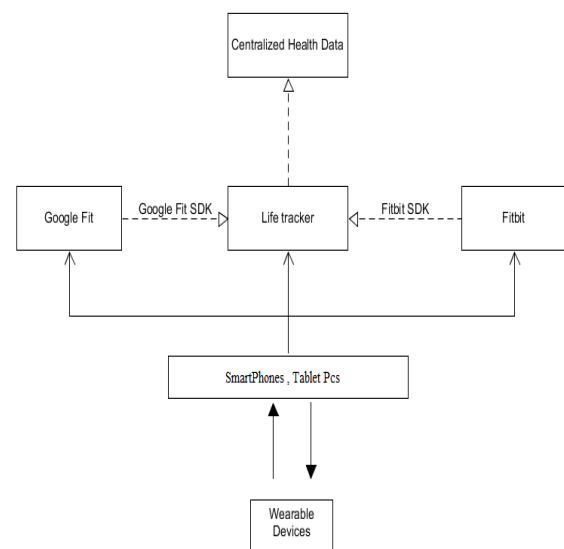

Fig-1: Architecture Diagram

III. PROPOSED ALGORITHM

[1] User logs in via Facebook / Google or signs up manually.

[2] Homepage of LifetTracker with user details and activity trackers.

[3] Access Request pop-up for fitdata from GoogleFit and Fitbit.

[4] If Yes

    Read data using History API
    Write data using History API

[5] If No
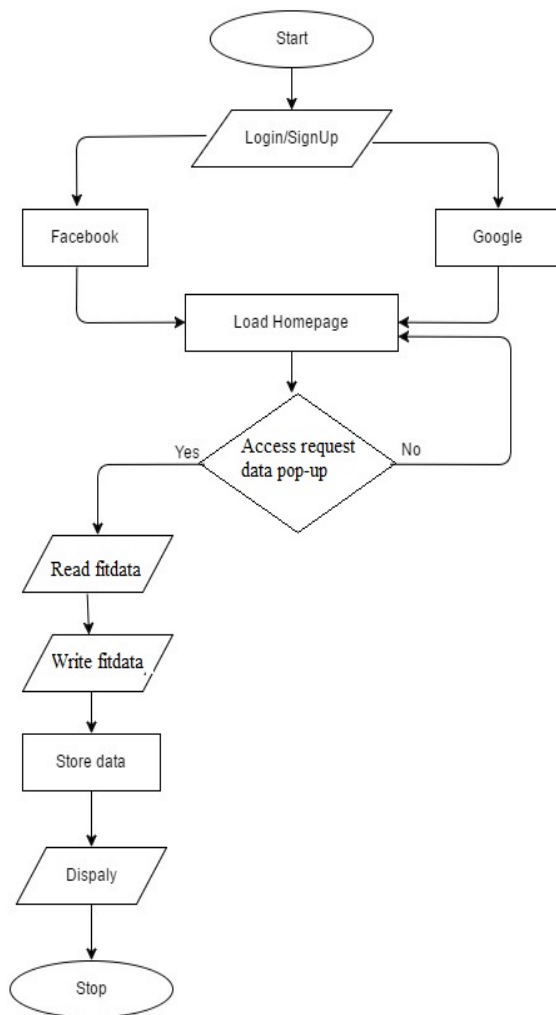   Goto step 2

[6] Display the aggregate data of logged in user.

Fig-2: Flow chart of Algorithm

IV. OBSERVATIONS

- It helps improve user's health condition through daily analysis of his/her activities.
- This helps doctors access patients data from anywhere for treatment which is more efficient.
  A user can take preventive measures by analyzing the data throughLifeTracker which reduces the cost.

Analysis is easier to be done from graphical representation as shown in the following image.
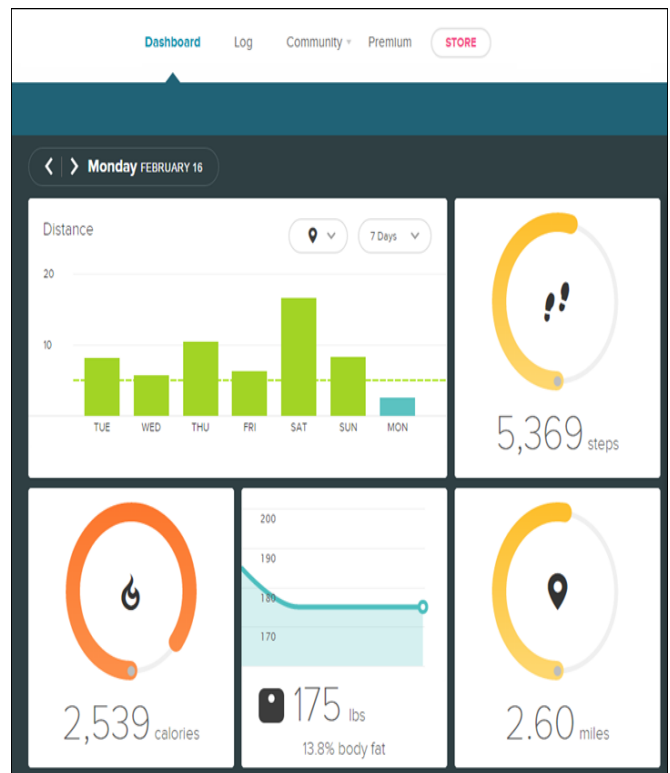
Overview of the LifeTracker Application

V. APPLICATIONS

- Patients can be given treatment using the historical data and tracked activities.
- Goal setting in this application can lead achieve new goals.

Sticking to the goals can help enhances routine of users.

VI. FUTURE SCOPE

All the data that has been tracked is saved on the server at run time. This data can be used in the next phase for analysis and goal setting.

VII. CONCLUSION

With the help of this app, a person can work on his/her fitness and health. Moreover the historical data obtained will be useful to take precautionary measures.

ACKNOWLEDGEMENT

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