

# Poster: Smartphone Based Wellness Application for Healthy Lifestyle Promotion

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## ABSTRACT

Wellness platform plays a vital role to prevent chronic disease. In this paper, we have introduced wellness smartphone application within the ambit of the Mining Mind project, which aims to support the people to adopt healthy behavior and lifestyle. When an unhealthy behavior is detected, personalized physical recommendations are generated automatically by the Mining Mind wellness platform. Recommendations are delivered through Push notification and display on the application main screen for the user. The application has feedback functionalities on the effectiveness of recommendation and education. The application also supports descriptive analytics of wellness goals achieved on a monthly, weekly and daily basis.

## CCS CONCEPTS

• **Information systems** → *Data analytics*; • **Applied computing** → *Health care information systems*.

## KEYWORDS

Wellness application, Lifestyle monitoring, Healthy lifestyle program, Behavior change

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## 1 INTRODUCTION

Mostly the modern urban lifestyle people face to health problems and diseases, such as strokes, obesity, diabetes and cardiovascular disease due to inadequate physical activity, junk food, and immense stress levels [4]. Despite the widespread information, major publicity campaigns on specific unhealthy behaviors like smoking or drinking alcohol and wellness programs, majority people of the society do not adopt a healthy lifestyle [5]. An IOT technology is playing a vital role to affect the daily life of people positively and helped people to switch their unhealthy behavior and sedentary

lifestyle. Therefore, we have developed a wellness smartphone application within the ambit of the Mining Mind project [1], which aims to support the people to adopt a healthy lifestyle. When an unhealthy behavior is detected an alert notification is generated to the user from the wellness platform, containing recommendation and education. The application support explicit feedback on the effectiveness of education and recommendation. The application display goals achievement status for healthy, unhealthy and moderate level on monthly, weekly and daily basis.

## 2 RELATED WORK

Nowadays, the app market provide about 40,000 applications related to healthcare [2]. More than 23,490 are available on Apple iTunes (iOS) and more than 17756 on Google play store (Android) [5]. Google has developed a health-tracking platform namely “Google Fit” for Android and Wear OS. Google Fit uses sensors to track and record user activity such as walking and cycling through smartphone and wearable devices [3]. The aim of these applications is to provide services regarding health care and fitness with a wide range of functionalities like self-monitoring, the measurement of health and fitness parameters, determination of BMI, education on nutrition and diet and sleep monitoring. The most application provides the setting environment of new fitness and health goal, and delivered recommendation and education in the achievement of the goals on a daily basis by development changes in behavior [5].

## 3 PROPOSED METHODOLOGY

The application framework is showing in Figure 1. This application has been developed to support the elderly people for wellness and healthy lifestyle with adaptive behavior index. Task-performing in this application is categorized below.

**3.0.1 Data Collection.** The most challenging task in wellness platform is to collect accurate data. Sensory data is collected from inertial sensors of the smartwatch, smartphone, gyroscope and accelerometer. These data is then stream into the wellness platform for further process and infer user behavior to detect the unhealthy situations or potential risk.

**3.0.2 Push Notification for Indication.** The wellness platform detects unhealthy behavior, (e.g. continuously sitting for one hour), and automatically generate push notification to the user through smartphone containing physical recommendation or educational facts (e.g. “stretch your arms, back, and a leg”).

**3.0.3 Education Recommendations.** Education is a piece of important information deliver from wellness platform at real time and

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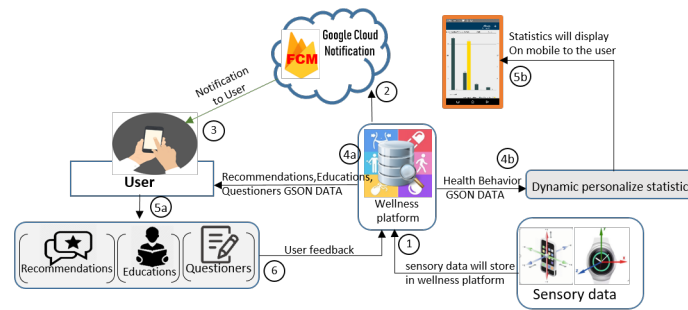


Figure 1: Service scenario for wellness Smartphone application

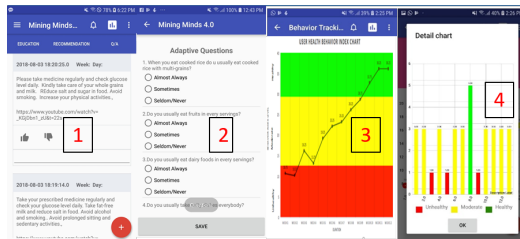


Figure 2: Wellness Application Screenshot

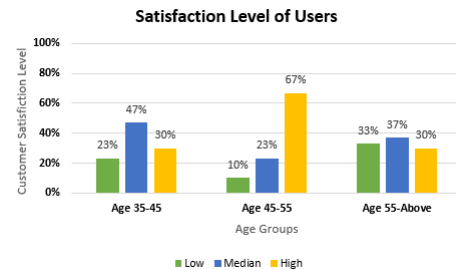


Figure 3: Mining Mind Application user satisfaction level

display to the user on a smartphone for avoiding unhealthy change e.g., “Sedentary life style is injurious to health. Don’t remains sedentary for more than 30 minutes”.

**3.0.4 Physical Activity Recommendation.** Physical activity recommendation is most suitable for achieving health goals. E.g. “To meet your daily goal of calories burn you have to run for 15 minutes at a speed of 5km/hrs.

**3.0.5 Descriptive Analytics.** Descriptive analytics communicates an effective and comprehensive picture of user activities and lifelog in a specified duration to understand the lifestyle pattern. The platform provides to the user customization of data selection through the duration in terms of the day, week and month and displayed in the form of a graph on user mobile screen see Fig.1.

The Mining Mind application screenshot is showing in Fig.2. The screenshot included (i) recommendation, education, and questioners, (ii) adaptive behavior feedback, (iii) and (iv) achieving goals on monthly, weekly and daily basis. This application supported in two languages English and Korean..

## 4 RESULTS AND DISCUSSION

We test and evaluate Mining Mind wellness application on different age group users as shown in Fig 3. The people of age group 45-55 show high confidence level on the availability of such wellness services. The satisfactory level of the age group is 45-55 is high with more than 60%, while people of age group 35-45 have a lowest satisfactory level and remain moderate for the age group 55-above.

## 5 CONCLUSION

In this paper, we have introduced a wellness smartphone application that supports people to adopt healthy behavior and lifestyle

at the right time. An alert notification delivered to the user from a wellness platform when an unhealthy behavior detected. The user educates and recommends follow-up instruction to adopt a healthy lifestyle. The application also provides feedback functionality on the effectiveness of the recommendation. The application also displays monthly, weekly and daily basis goal achievement for healthy lifestyle.

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