

## **PREVENTIVE HEALTHCARE APPLICATION FOR DIABETIC PATIENTS AT HOME USING SMARTPHONE**

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**Abstract:** Recently, the number of patients with diabetes mellitus (DM) has been increasing. Because DM causes many complications, it is important for patients with DM to control their blood sugar levels. However, there is not an effective method for the patients to manage their blood sugar levels at home. Therefore, we developed a home support system for the patients by which the patient can accumulate various biological measured data and send the data to a medical institution. At the institution, a physician can check the data and provide instructions via e-mail to the patient at home.

**Keywords:** web server

### **I. INTRODUCTION**

We propose a computational model for the purpose of providing patient-specific reminders, advice and action-items in preventing the development of diabetic foot in diabetic patients. Recently, the number of patients with diabetes mellitus (DM) has been increasing. Because DM causes many complications, it is important for patients with DM to control their blood sugar levels. However, there is not an effective method for the patients to manage their blood sugar levels at home. Therefore, we developed a home support system for the patients by which the patient can accumulate various biological measured data and send the data to a medical institution. At the institution, a physician can check the data and provide instructions via e-mail to the patient at home.

The system is composed of a smart phone used by the patient, a server installed at the medical institution and a personal computer (PC) used by the physician. The patient measures data such as weight, blood pressure, blood sugar, etc. at home and send these data to the server using the smartphone. The physician can check the patient data, including a medical and medication history, and provide instructions.

The system is aimed at both: (i) patients who would like to manage their illness efficiently by being informed and alerted to the significance of any change(s) they detect in their feet and (ii) healthcare professionals who can disseminate their knowledge to patients more effectively, and thus prevent the development of diabetic foot, which may cause the premature death of diabetic patients.

This system is composed of a smart phone for the diabetic patients at home, a personal computer (PC) operated by a physician and a web server installed in the medical institution as shown in Fig. 1. Diabetic patients can enter their measured data, such as blood sugar levels and insulin administration, into the smart phone and check their compliance with instructions for prescribed medications.

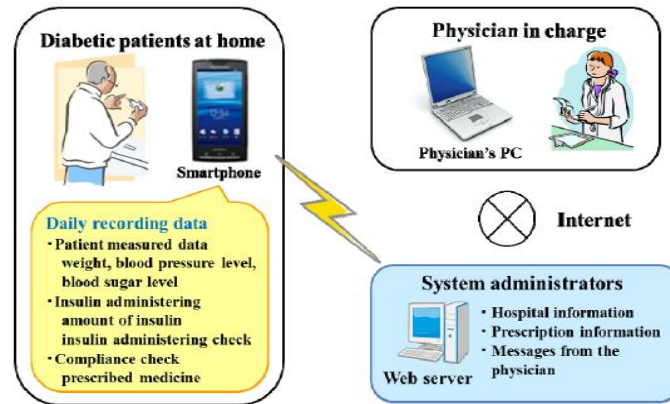


Fig. System Configuration

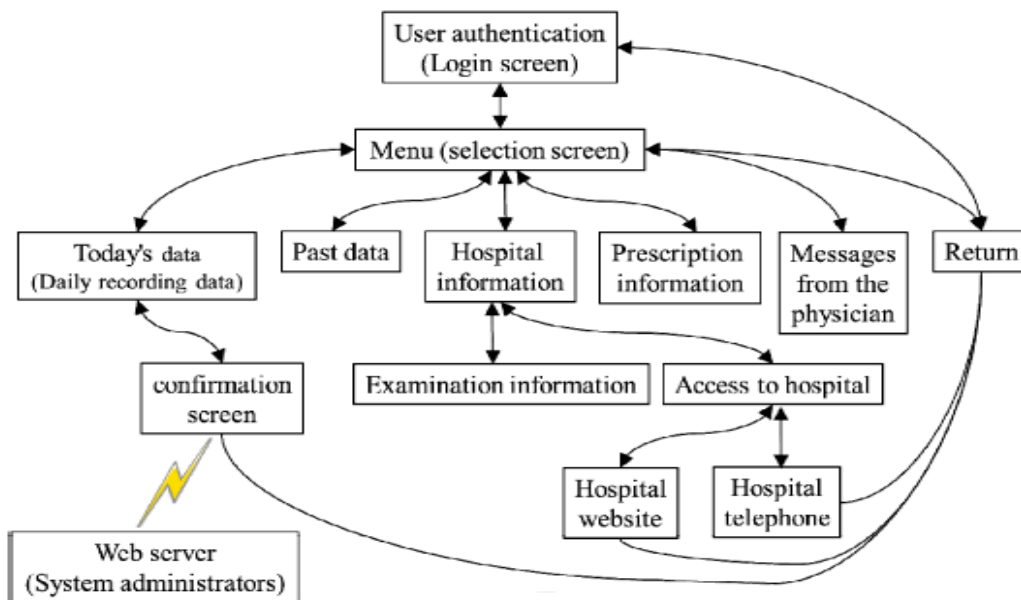


Fig.2 State transition diagram concerning system functions

## II.OBJECTIVES

- To offer cutting edge free online medical advice and answer to patients medical questions.
- patients who would like to manage their illness efficiently by being informed and alerted to the significance of any change(s) they detect in their feet and
- healthcare professionals who can disseminate their knowledge to patients more effectively, and thus prevent the development of diabetic foot, which may cause the premature death of diabetic patients.
- Provide service for registered persons at anywhere and anytime.
- Help patients to get accurate information of specialist and reachable doctors.
- Patients will easily available for doctors.
- Keeping history of all patients.

### III. PROPOSED WORK

#### Problem definition

Gone are the days when people can rely on their family doctor with the help of nurse to take charge of their health care. Because people always seek medical advice from their doctor when making decisions about their medication.

This is free application for online medical advice and answer to patients' medical questions. In this application we provide account creation for patient as well as doctor. When patient login he/she must enter symptoms, according to that application will give the possible diseases and available reachable specialist doctors. After that patient will choose the doctor and request for appointment. If doctor is able to treat that patient then he gives response. This application will give unique id to each patient and take back up of all history.

#### System Architecture

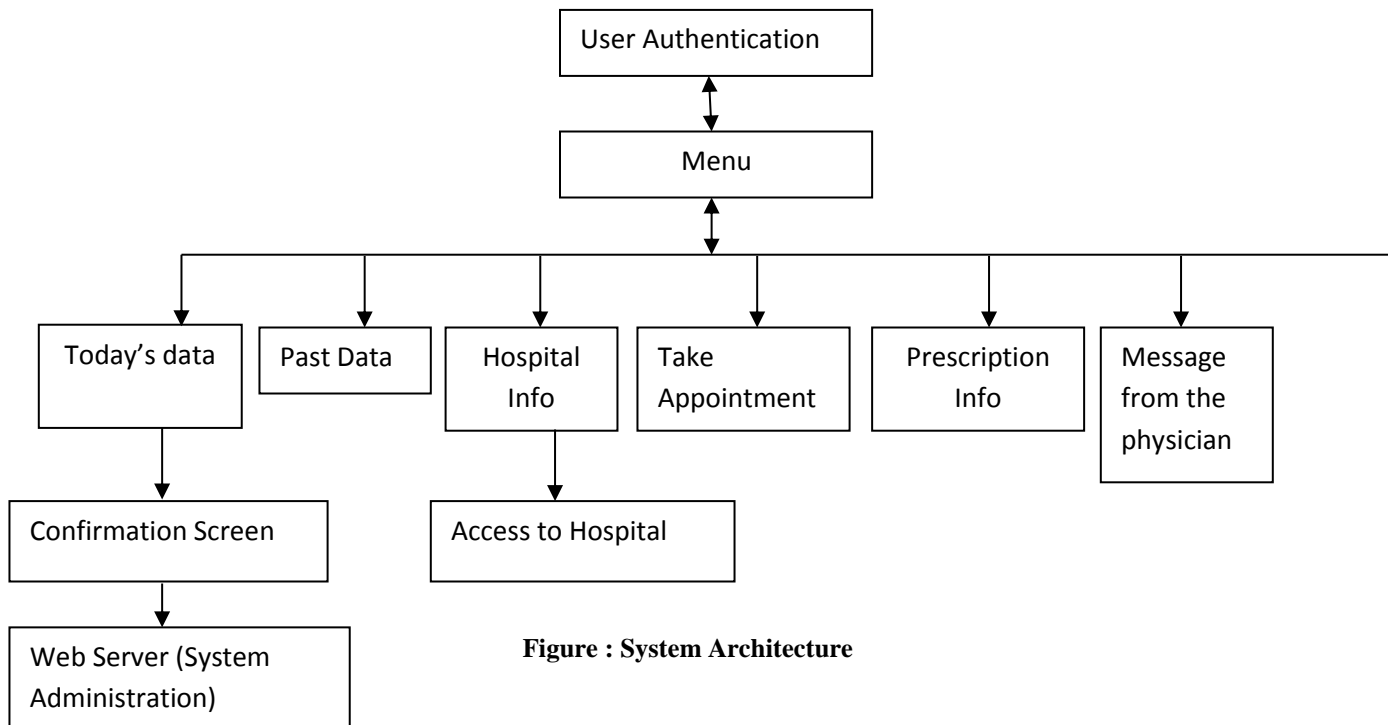


Figure : System Architecture

This system is composed of a smart phone for the diabetic patients at home, a personal computer (PC) operated by a physician and a web server installed in the medical institution as shown in Fig. 2. Diabetic patients can enter their measured data, such as blood sugar levels and insulin administration, into the smart phone and check their compliance with instructions for prescribed medications.

#### IV. CONCLUSION

In summary, we will develop a home support system for diabetic patients by which the patient can record his medical data and send the information to a medical institution with a smart phone. Using this system, a physician can check the transmitted data and provide instructions via Mobile Application to the patient at home.

#### V. REFERENCES

1. Nida Chammas, Radmila Juric, Nigel Koay, Varadraj Gurupur: Towards a software Tool for Raising Awareness of Diabetic Foot in Diabetic Patients, IEEE Volume issues HICSS year 2013.
2. The Ministry of Health, Labour and Welfare, Analysis and result display of patients survey (wound classification chapter) measurement data in 2008.  
[\(http://www.mhlw.go.jp/toukei/saikin/hw/kanja/10syoubu/suihyomokuji.html\)](http://www.mhlw.go.jp/toukei/saikin/hw/kanja/10syoubu/suihyomokuji.html), (2011/12)
3. Y. Okaniwa: diabetic, metabolizing, internal secretion vol.3, the second edition, MEDICMEDIA Co., pp. 2-61, 2010. (in Japanese)
4. H. Katou, Y. Tanaka: Meaning of blood sugar grasp by frequent blood sugar self-measurement, DIABETES vol.4, no.1, Igaku Shuppan Co., pp. 24-32, 2012. (in Japanese)
5. Y. Ohkubo et al.: Diabetes Res Clin Pract. pp. 103-117, 1995.
6. UK Prospective Diabetes Study (UKPDS) Group, Lancet., pp. 837-853. 1998.
7. M. Kawarasaki, T. Asano, M. Ohara, K. Kawai, T. Igarashi: Development and Validation of a Cell-phone Based Interactive Selfcare Support System for Lifestyle Diseases, Medical informatics vol.29, no.5, pp. 201-210, 2010. (in Japanese)