Psycare

Faisal Jabbar
Software Engineering Department
Bahria University Karachi Campus
Karachi, Pakistan
Faisaljabbar123@yahoo.com

Mobeen Nazar
Universiti Kuala Lumpur
Malaysian Institute of Information Technology
Kuala Lumpur, Malaysia
2mobeen.nazar@s.unikl.edu.my

Ayesha Anees Zaveri
Universiti Kuala Lumpur
Malaysian Institute of Information Technology
Kuala Lumpur, Malaysia
3zaveri.ayesha@s.unikl.edu.my

***Abstract*—Communication plays important role in every aspect; it can also be helpful in the treatment of diseases whether they are physical disease or mental problems. The disease known as psychosis is a mental disorder that needs frequent meetings of psychologists and patients. Information technology is shifting modern society to help to do tasks more efficiently. The authors are providing the solution of information services to help psychologists to be in touch with patients more efficiently and more easily. For making this easy a mobile application is developed for the patient to communicate well with the psychologist. The application will get the data from the patient on regular basis automatically and send the data to his/her psychologist so that later can be used for better treatment.**

Keywords—depression; mental health; technology; psychosis; data; informatoni; psychotic; communication; therapy

I. Introduction

Mental health is an important issue, and a healthy mind is as much important as a sound body [1]. Psychologists are researching how to analyze psychotic problems and solve them more efficiently. One of the big problems of psychologists is to communicate well with the patient. Communication is needed daily or sometimes several times a day for the better mental health of a patient. Among the many changes occurring in healthcare is increasing recognition of the patients' role in their health management [2, 3, 4].

Psychosis is a mental disorder in which a person's personality is severely confused and that person loses touch with reality [5]. For its treatment must be in touch with the psychologist regularly. It is difficult for a Psychologist to meet or call each patient daily and ask about their routine.

Modem society needs information services to process efficiently a vast amount of information [6]. In this paper, the authors are making a mobile application that will enhance the communication between a psychologist and a psychosis patient. Before making this app the information is gathered from psychologists to ask them about the communication gap and the problem that arises in the daily communication of psychosis patient and the psychologist which gave the information that the daily meeting of patient and psychologist is not possible due to many reasons that are they don't have time or patient are afraid of society, and the main problem told by the psychologist is that communication with the patient of remote areas is very difficult and the daily meeting is not possible with them so their treatment is very difficult or not possible without communicating with them. Nowadays the Electronic databases, documents, and other innovations help with searching data and information processing [7]. After all the background the authors decided to develop a mobile application that will fill the communication gap between the patient and the psychologist. We can provide this application to the psychologist, and they can use it for the therapy.

II. Methodology

The authors have used Android studio, SQLite for mobile applications and Visual Studio, and My SQL for the Desktop application that will be operated by the psychologist. Figure 1, show the architecture of Psycare system in which Psycare mobile app, helps patient to keep track of their psychotic symptoms. By asking a patient to rate their experience several times a day, Psycare provides immediate illness treatment solutions. Psycare also tracks patient over time so that early signs of relapse can be recognized as soon.

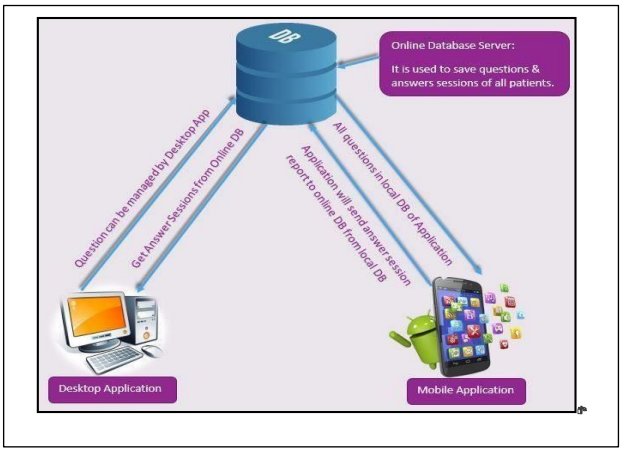


Figure 1 System Architecture

III. PSYCARE

This Section explains in detail the different parts of the Psycare System.

A. Data Analysis

Data Data analysis provides a behavioral and communicative view of the system by describing and unfolding the sequence of actions and activities in the process [8]. Figure 2 shows the flow between hardware and software activity.

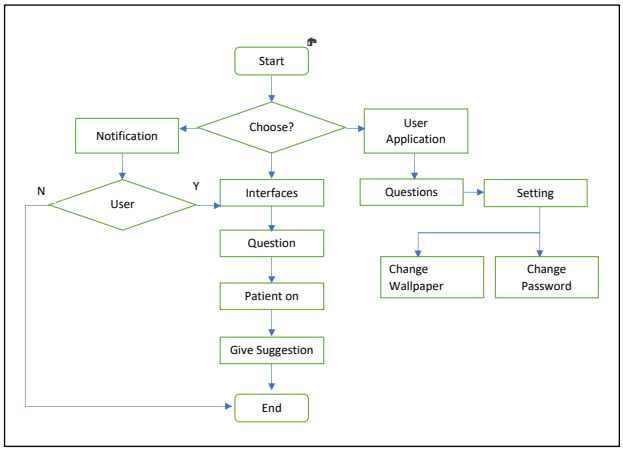


Figure 2 Flow of Hardware and Software

Figure 3 describes the process [9] of Psycare mobile application in which the user can start the application in two different ways first he/she can start with the icon in mobile like every application and start performing actions or work and the second way is that the notification alert generates twice a day and user can drag it and tap it to start the question-answer session and answers questions one by one and then application analyze the answers according to an algorithm and then give suggestions to the user.

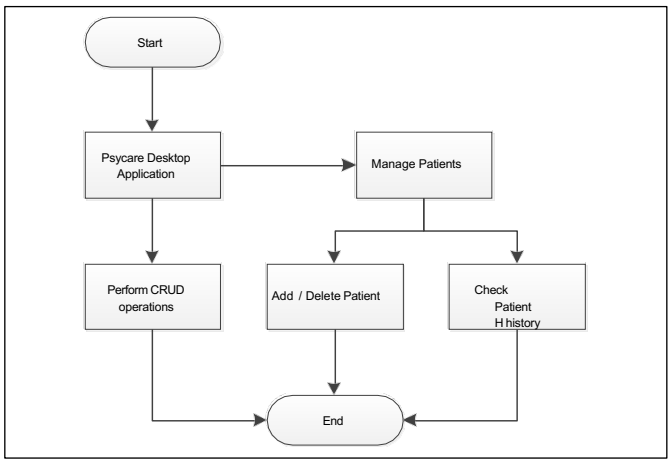


Figure 3 Mobile Application Process Flow

This Figure 3 describes the process of the Psycare desktop application. In the Psycare desktop application the psychologist starts the application and can perform multiple operations like he/she can manage patients add update and delete patients and can also check the patient treatment history in form of graphs.

B. Clients/Customers and Users

We have two types of users:

- The Psychologists: The psychologist use the desktop application to manage the record and to see the results of all patients and their treatment history. The desktop application will help the psychologist in the treatment and pre-observation of the patients.
- The Patients: The mobile application is provided to patients by the psychologist for the treatment of depression and paranoia. The application will ask questions about the problem of patients twice a day via notification. The patient will then answer all questions and send it to answer to the psychologist via a server that will help the psychologist in treatment.

C. System Architecture and Program Flow

In this section, we will discuss the major module of the system. Following are the major module of the system:

- Ask questions to patients
- Get response of answers
- Suggest something to patients
- Send answers to the server through the network
- Change Login password of Android app
- Send an alert if any problem
- RIP Motion Sensor
- Face recognition algorithm
- Android application interface with hardware
- User can open the gate by using the Android application
- All database saves in the database
- Log of each process save in database
- User updates, inserts, and deletes contact from the database

Following are the major module of the system:

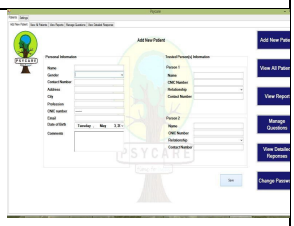
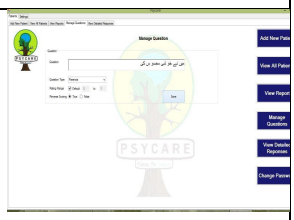
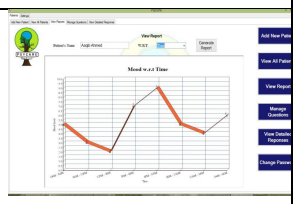
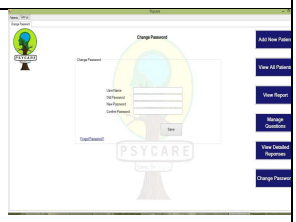
- Daily two-time notifications to ask questions
- Store answers to local DB if network is unavailable
- Send answers to online DB when the network is connected
- Ask questions one by one
- Alternate Paranoia and Depression questions

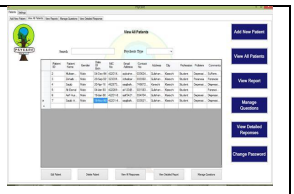
IV. RESULTS AND EVALUATION

Table 1 shows the test cases of the application along with the description input and the application interfaces.

Identify applicable sponsor/s here. If no sponsors, delete this text box (*sponsors).*

Table 1 Test Case

Test case	Description	Input	Interface
TC 1	The Psychologist will enter login ID and password to access the application.	Login ID and password will be entered in textboxes with string type. The Button will be used to proceed if the ID and password are correct.	
TC 2	This form will be used to register and enter the details of the patient & his one or two trusted persons that can be contacted if the patient doesn't respond.	The fields in the interface need to be filled to proceed with the application.	
TC 3	Form includes fields that will be used to enter the questions and their details.	Question will be entered in textboxes with string type and Right to Left language. The Combo box will be used for the Question type rating range will be selected from the checkbox and textboxes. Reverse scoring will be selected from Radio buttons.	
TC 4	The Form includes a Data grid view to show the report generated by responses of the patients.	The name of the patient will be entered in the textbox with string type. Variant will be selected from the combo box. The graph will be shown in data grid view.	
TC 5	Form includes fields that will be used to change the password of a desktop application.	Sur name, old password, new password and confirm password will be entered in the text-boxes with string type. The forgot password option is accessed by clicking a link label.	

TC 6	The form includes a record of patients and Psychologists can perform CRUD operations on record.	The record is shown in the data grid view. CRUD operations can be performed using buttons. Search operation can be performed using a text box.	
TC 7	In this form, detailed responses will be shown for decisions.	Responses will be shown in a data grid view. The patient's name will be entered in a textbox. The Button will be used to show the responses of a particular patient.	
TC 8	This is an Android application interface in which a notification can be seen. This notification will pop up twice a day and ask the patient to answer the questions.	User will click it to answer the questions	
TC 9	In this mobile application interface, the user will select to proceed to answer the questions or go to Setting. It is like the main screen.	User will select to start the questions, go to settings, or give feedback with the help of buttons	

V. Conclusion

Modern society is shifting to information technology to help in doing tasks more efficiently. We are using information services to help psychologists to be in touch with patients more efficiently and more easily. Communication is a big problem in this process. For this purpose, a mobile application will be made for the patient to communicate well with the psychologist. Our application will get the data from the patient on regular basis automatically and send the data to his/her psychologist so that latter can use the information for better treatment. By suing mobile phones and computers with a good software system can help in eradicating this problem.

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References

[1] Pelletier, K. R. (1995). Sound mind, sound body: A new model for lifelong health. Simon and Schuster.

[2] Meyer, G. J., Finn, S. E., Eyde, L. D., Kay, G. G., Moreland, K. L., Dies, R. R., & Reed, G. M. (2001). Psychological testing and psychological assessment: A review of evidence and issues. American Psychologist, 56(2),128.

[3] Roter, D., & Hall, J. A. (2006). Doctors talking with patients/patients talking with doctors: improving communication in medical visits. Greenwood Publishing Group.

[4] Finkelstein, Joseph, et al. "Feasibility of computer-assisted education in patients with multiple sclerosis." Computer- Based Medical Systems, 2004. CBMS 2004. Proceedings. 17th IEEE Symposium on. IEEE, 2004.

[5] Allen, J. G., Coyne, L., & Console, D. A. (1997). Dissociative detachment relates to psychotic symptoms and personality decompensation. Comprehensive Psychiatry, 38(6), 327-334.

[6] Andrienko, A. S., I. A. Dmitrieva, and O. V. Popova. "Computer support of "Psychology of Communication" discipline as a part of "International Scientific and Technical Communications" course." Application of Information and Communication Technologies (AICT), 2015 9th International Conference on. IEEE, 2015.

[7] Finkelstein J., Nambu S., Khare R., Gupta D. CO-ED: A development platform for interactive patient education. Proceedings of the International Conference on Computers in Education. December 3-6, 2002, Auckland, NZ, 648-65

[8] Paredis, C. J., Bernard, Y., Burkhart, R. M., de Koning, H. P., Friedenthal, S., Fritzson, P., ... & Schamai, W. (2010, July). 5.5. 1 An overview of the SysML·Modelica transformation specification. In INCOSE International Symposium (Vol. 20, No. 1, pp. 709-722).

[9] Bastos, R. M., & Ruiz, D. D. A. (2002, January). Extending UML activity diagram for workflow modeling in production systems. In Proceedings of Hawaii International Conference on System Sciences. 9. 291.