

Preliminary Assignment B

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OBJECTIVE: Chatbot Application Will Serve As Personal Health Assistant

INTRODUCTION:

Healthcare Chatbot Application formed to help healthcare staff by automating the patient admission process. The chatbot Application interacts with a patient conducting an interview, realization their main complaints in natural language and sending reports to doctors for additional analysis. The system gives a mobile application interface for patients, a diagnostic unit and a doctor interface to access patient records. The system combines the capacity of natural language processing based on data with the capacity of diagnosis based on knowledge. We evaluated our proof of concept in reference case studies and compared the system with existing medical chatbots.

IMPORTANCE:

Those with healthcare should sometimes wait long before the doctor advises them. This is often due to the heavy workload and limited resources in the care service. To simplify the process, nurses and other healthcare professionals often take the role of patient access. The receptionist initially greets the patient and who carries out an intake query. A receptionist is usually a person with a certain level of medical expertise, and the study involves collecting the patient and understanding the patient's symptoms. The result of this study is a brief report to reduce the cause of the symptoms so that the physician can use the minimum effort to make a different diagnosis.

Firstly, sometimes staffs must fulfil the demand of many patients and promptly attend to everyone; This increases the risk of losing crucial information in the inquiry reports. Secondly, if the intake query is based on standardized forms or questionnaires, the questions to the patients would not be sufficiently personalized to reflect the specific symptoms of the persons, reducing the usefulness of the interview.

Thirdly, there are so many simple medical questions, but leaving them unanswered leaves people preoccupied with nervousness, confusion and no idea. Imagine a young mother with a two-week-old baby with no experience. You will be bombarded with tons of questions if you ask her how she and the baby are doing. What is the temperature for a baby that requires intervention? What is the ideal temperature for the baby's bath? How much sleep is enough? Is it better to leave a sock in the little girl's hands for a while after being born or not?

The solution is a Chatbot Application Will Serve as Digital Personal Health Assistant constantly supported and gradually taught by physicians.

PROBLEM IDENTIFICATION

The problem of "overpopulation" or the long waiting time in emergency units of hospitals and other health care services has been a global challenge. To address the growing population and the growing demands of patients, several countries have implemented goals to reduce the waiting time in health care providers, Support applications for existing patient interviews often take the form of expert systems. A common test facing all these applications is the uncertainty and diversity factor of patient responses. As a result, expert systems generally do not provide effective support for decision making and attention to flexibility that is tailored to individual needs.

RELATED WORKS:

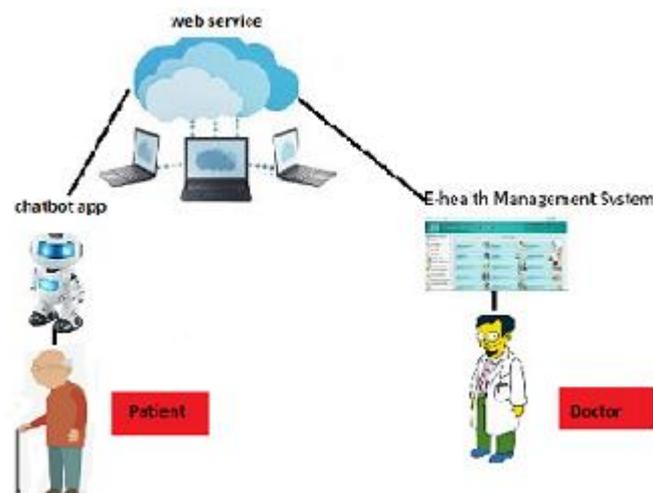
Numerous clinical decision support systems (CDSS) have working AI technologies in many ways: MYCIN is commonly known as one of the first rule-based expert systems that were used for identifying infectious diseases. [3]

One of the more recognized achievements in this area is from IBM's Watson Health. The system flawlessly combines natural language processing, dynamic learning and hypothesis generation and evaluation to deliver valuable systems in various key areas such as genomics, oncology, and medical imaging. [4]

Natural language processing has been adopted in medical domain the recognized ELIZA [5] was designed to perform roughly as psychotherapists. More newly, Florence Bot is a chatbot that reminds patients to take pills frequently.

METHODS

The patient interacts through a mobile chatbot. All algorithms are performed and all data is handled in a web service (cloud). This means that all sentences to and from patients are created in the cloud, separately. After the interview, the patient registers and produces a report on the patient's situations. Then, the doctor can log in to the e-health administration system to access the personalized reports generated for the patient.



REFERENCES

- [1] Bickmore, T., Giorgino, T.: Health dialog systems for patients and consumers. *J. Biomed. Inform.* 39(5), 556–571 (2006)
- [2] Computer History Museum (2006), "Internet History—1970's", Exhibits, Computer History Museum, archived from the original on 2008-02-21, retrieved 2008-03-05
- [3] Victor, L.Y., Buchanan, B.G., Shortliffe, E.H., Wraith, S.M., Davis, R., Davis, A.R., Scott, A.C., Cohen, S.N.: Evaluating the performance of a computer-based consultant. *Comput. Prog. Biomed.* 9(1), 95–102 (1979)
- [4] High, R.: *The Era of Cognitive Systems: An Inside Look at IBM Watson and How it Works*. IBM Corporation, Redbooks (2012)
- [5] Weizenbaum, J.: Eliza—a computer program for the study of natural language communication between man and machine. *Commun. ACM* 9(1), 36–45 (1966)