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Health Risk Management Using AI

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Research Paper: Health Risk Management using AI

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Abstract – This report contains all the details about the project Health Assistant. Now a days AI are replacing many jobs that are difficult for a human to manage and I believe Health Assistant also falls under the same. Health Assistant requires to monitor the patient 24x7, which is quite difficult for a human. We already have various devices that measure the heart rate, sleep, and exercises. These data will be useful when user is interacting with our health assistant. This project will create an assistant that will give advice and prescription to the user about their health. User can ask small query that do not require extreme expertise of the doctor. Good health can be achieved by maintaining good behaviors such as good health, night sleep, enough exercise and good nutrition. However the competitive environment nowadays prevent such good environment. Our assistant will be there to answer the queries about the users cause of irritation and ill health problem. Assistant will also provide necessary prescription and suggestion of doctor relevant to the cause. Virtual Assistants take care of patients' needs as well as maintain their health records. The demand for AI is increasing rapidly in Health factors to maintain the big records. Our Virtual Assistant helps you by a user interface by which you talk it with your disease so that it understands your disease by your symptoms and provide you medicine for a specific disease, maintain your health record and perfect diet by machine learning algorithms also if you want it makes your appointment with the doctor your specific area by which you contact with your doctor. NLP makes an interface by which virtual Assistants work on human data. Health Assistant will provide you 24x7 service and gives you expert recommendation on your problem to make you feel happy.

I. INTRODUCTION

Client Identification/ Need of relevant contemporary issue

Let us start with the simple definition of the topic. Assistant mean a person who helps somebody in a more important position. If we talk about health assistants, he/she is a person who helps in monitoring the patient condition for the doctor. In this project this

health assistant will be a computer software that will monitor the various critical data of the patient that are required in order to prescribe any medicine. We can see with the recent incident of COVID-19 , that the ratio of doctor and patient completely outmatch. There are less doctor and more patient, so to check patient individually and prescribe them medicine is very difficult task. Brookings.com also talked about the same problem back in 2020. Health assistant are very crucial in health sector and to match 1:1 ratio is almost impossible. In fig no 1.1 we can see the actual ratio of the doctor to patient and assume the pressure that doctor go through treating them. This is bad for both patient and doctors profession. In order for a person to maintain a healthy life style his/her health assistant must be there in the time of need, they must learn his/her needs, and who spends most of the time with person. This is impossible to pull out in today's crowed world.

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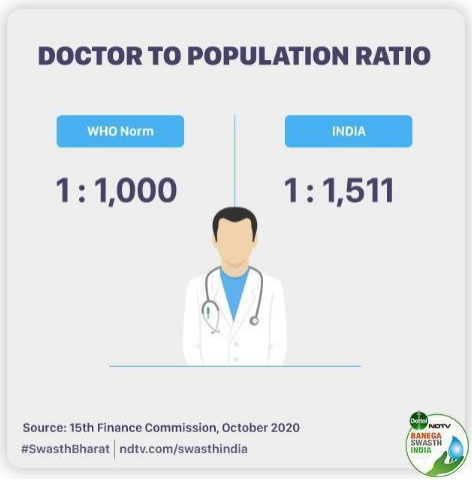

Fig. 1.1: Doctor to Population ratio

II. LITERATURE REVIEW

Health care is one of the major field where we have seen huge transformation in previous year. Medical science are continuously doing review and development using AI to create an automated system that can identify the problem and give back the suggestion or solution. In today's world we can see almost everyone is suffered from some kind of disease, healthcare systems face growing demand for their services, rising costs and a workforce that is struggling to meet the needs of its patients. In order to extract relevant review from the published literature, a systematic literature search capturing medical chatbot-related work from the beginning of 1966 until 12/12/2019 was undertaken. Three meta-databases (i.e., IEEE, ACM, SpringerLink/(sub-)discipline "medicine & public health" and "Information Systems Applications (incl. Internet)" and the AIS basket of eight journals were searched resulting in 227 articles that met the inclusion criteria (abstract or title or keywords contains "chatbot" AND "health"). Taking a real world example we can see lots of rich people getting sudden heart attack and dying. Also we have some live examples of apple watch saving people around the globe floating in internet. This shows how AI can help manage your health needs, requirement and also saves your life. Looking back at the history we can see previous attempts on AI supported medical assistant getting better and better every day.

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Timeline of the reported problem

1. In 1934, Dr. M. Mandal founded the f irst specialty school to train assistants in doctor's offices. By 1955, standardized p rocedures were required and the Americ an Association of Medical Assistants (A AMA) was formed to standardize practic es and provide certification.

Since most of the current research work on chatbots is related to technological de velopment, there is an analysis of the dif ferent behavioral effects of chatbots. For example, Pereira and Díaz examine how chatbot providers are of particular intere st in health through behavior change. Thi s led to the discovery of the need for adv ertising regarding the social impact of ch atbots. We also found MentalEase, a mo bile app that uses NLP technology to not only provide chat service but also a hand y box for managing mental health. By int egrating psychological assessment tools i nto the chatbot interface alongside traditi onal treatments, it can help patients cope with mild anxiety and depression.

This can also overcome some psychologi cal issues, such as waiting lists and geog raphic issues that prevent you from attending in-person meetings. A chatbot can be defin ed as a computer capable of intelligently responding to user input by understandin g natural language using one or more NL P techniques. In this study, we discuss th e use of NLP in psychology and conduct a comprehensive assessment of existing systems by comparing chatbot responses with a preliminary set of consumer-related health-related mental health issues.

2. In 1978, U.S. The Ministry of Health, Education and Welfare recognized medi cal services as health workers.

3. International Journal of Advanced Re view of Computer and Communication Engineering ISO 3297:2007 Certified V ol. 6, Issue 4, April 2017 Over the past f ew years, chatbots have played an impor tant role in the human-machine interface. Chatbots usually have three modules: us er interface, translator and knowledge ba se. Laven [6] defines a chatbot as a progr am that attempts to simulate a conversati on in order to make people think that the y are talking to another person, at least te mporarily. Basically, a chatbot is a conv ersation tool that can use natural languag e to interact with users on a topic. There are many chatbots on the Internet that ar e used for education, customer service, e ducation and entertainment. Popular chat bots are ALICE [2], SimSimi, and Cleve rbot.

Derived from Extensible Markup Langu age (XML), Artificial Intelligence Mark up Language (AIML) is used to create in teractive user interfaces. AIML-based chatbots are renowned for their lig htness, easy configuration, and low cost. AIML consists of data classes called AI ML objects that describe the behavior of a computer program. In our article, we u se program-o [1], an open source AIML engine writt en in PHP. Chatbot is an interpreter for AIML scripts.

The chatbot uses a MySQL database to s tore its content. Also, we store all AIML files in one file. When the user sends a m essage to the chatbot, a response is gener ated based on the response from AIML a nd sent back to the user. It can be installe d directly on a local server under the GN U General Public License. Chatbots use t he Internet using text, speech and emotio n as input.

In this article, we are using text and spee ch as user input. The output/output script is useful because the user can check the input and recheck for any errors. Howev er, providing text takes time. So the solut ion is to introduce the voice interface thr

ough voice recognition technology. Than ks to this process, this chatbot applicatio n is able to communicate with the user.
In this article, we introduced a chatbot a pplication on Android that has the ability to interact with users. The chatbot can a nswer questions entered by users in text and voice. For this, AIML is used with program. The chatbot can only answer q uestions whose answers are in the databa se. Therefore, to improve the experience of the chatbot, you can use Wikipedia, w eather forecast, sports, news, governmen t services, etc. We can add APIs.
In this case, users will be able to talk and interact with chatbots from any location.

Using APIs such as weather, sports, ne ws and government services, chatbots wi al be able to answer questions outside of their record and now appear in the real w orld.

4. In 1961, the AAMA created a new M edical Assistant Certification Commissio n. MA certification has been slow, but o ver the next decade, more and more gove rnment agencies will use some MA certif ication.
It also gained international membership t o the AAMA in 1976.5.2007 4th Internat ional Symposium on Applied Computati onal Intelligence and Informatics. Health affects all activities, and human speciali sts must be able to determine, in each dis ease situation in the patient, that treatme nt is necessary and what will change in t he patient during treatment. But making medical decisions can be a very difficult task. There are many applications in the field of artificial intelligence that try to help h uman experts come up with solutions. T his article describes a set of expert meth ods developed to make some predictions about liver disease.

5. 11073-20601-2014/Cor 1-2015 - IEEE Health informatics--Personal health communication Part 20601: Application profile--Optimized Exchange Protocol - Revision 1. In the summary of the ISO/IEE E 11073 series communications equipment s tandards, this standard defines: personal A g eneral framework for modeling the abstract nature of health information. in transport-independent transport syntax, which requires a connection between systems and provides the representative capabilities and services n eeded to perform communication tasks. This process is optimized for individual health n eeds and uses techniques and tools from all s ources. This fix removes confusion and fixes invalid names and conditions defined in IE AE Std 11073-20601-2014 to improve use of the standard in intero perability.

6. Natural language processing in psycholo gy using non-medical texts 2017 Authors communicate wi th others. People use words to express their actions, thoughts, feelings, hopes and expect ations as well as explaining simple facts. Co nsumers then use information gathered from emails and other information from social me dia, for example, to determine what other pe ople think that influences personal communi cation.
7.International Journal of Innovation Revie w in Computer Science and Technology (IJI RCST) Volume 6, Issue 3, May 2018. User i nterfaces that can be used for software appli cations include command line, graphical use r interface (GUI), menu, form-based, language. , etc. Mainstream user inter faces include GUI and web-based, but sometimes another user interface
is needed. Chatbot-based conversational UIs fit into this space.
4 one.
Medical Chatbots International Journal of C omputer Trends and Technology (IJCTT) –

Vol 60, Issue 1, June 2018. The main purpo se of the program is to create a different exp erience between users and doctors to instantl y answer users' questions. Most people toda y are addicted to the internet but they don't c are about their own health. They avoid going to the hospital for minor problems that may become serious in the future. Setting up a Q &A session is an easy way to answer these q uestions rather than checking a list of related documents from the web.

8.Abbe, A., Grouin, C., Twig Tree, P. ve Fal issard, B.
2015. Text mining in psychiatry: A systemat ic literature review. International Journal of Psychiatric Methods Review 25(2): 86-
100. The proliferation of biomedical data re quires efficient tools to store more data. Text mining (TM) methods have become importa nt to facilitate the extraction of valuable bio medical information from unrelated text.
We review the use of TM in psychology and explore its advantages and limitations. A lit erature search was conducted using the CIN AHL, Medline, EMBASE, PsycINFO and C ochrane databases. 1103 articles were revie wed for this review, of which 38 were includ ed in the Review of TM Use in Psychiatry.
Using WM and content analysis, we identifi ed four main areas of application: (1) Psych opathology (eg.
Clinical studies focus on psychological facto rs) (2) patient perceptions (eg, patient thoug hts and feelings), (3) clinical data (eg, safety concerns, quality of care, and treatment defi nition), and (4) medical information (eg, , . to. Check the latest research articles in the lit erature). Useful resources are qualitative res earch, internet publications, medical records and biomedical records. Our study proves th at TMs can contribute to the analysis of com plex tasks in psychology. We will discuss th e strengths, limitations and future uses of the se tools.

9.Barak, A., Boneh, O. thiab Dolev-Cohen, M. (2009).
2010. Factors involved in online support gro ups. A. Blachnio, A. Przepiorka, and T. Rowinski (eds), ´ Internet in psychological a nalysis, Warsaw, Poland: Cardinal Stefan W yszynski University Press, ´ p. 13-
47. Due to the rapid growth of social networ king services, online support groups differ in goals and styles. Many studies have shown t hat online support groups reduce the effectiv eness of psychological distress (eg, depressi on) in individuals with autism.
However, online support groups are not usua lly aimed at reducing the effects of stress-related outcomes. This study examines whet her frequency of use of an online support gr oup platform (U2plus) is associated with lo wer stigma and increased consumer retentio n. A total of 350 U2plus users participated i n the web survey. They are asked what type of treatment they have had in the past, and th ey often use all the features of that treatment and answer the following questions: Questi ons on the Healthy Patient Scale 9, the Discr imination-
Discrimination Scale, and the General Help-Seeking Questionnaire. According to the tre atments received, 88% (308/350) 66 of the p articipants were using psychiatric drugs.
6% (233/350) received psychotherapy or co unseling. Looking at the frequency of use, 2 1.7% (74/341) of the participants logged int o U2plus and used its functions more than o nce a week. Frequency of use of U2plus feat ures was not associated with stigma, but freq uency of use of some features was weakly as sociated with seeking help from resources (e g, doctors and psychiatrists). However, multi ple regression analyzes showed that the freq uency of use of these activities alone did not predict the need to seek help.
She said online support groups can be an alt ernative treatment option for people who are already using drugs and are willing to seek help wherever they find it helpful.

Display of Intelligent Behavior by 7.Chatbot system International Journal of New Technology and Review (IJNTR) ISSN: 2454-4116, Vol-3 Issue-4, April 2017 Page 52-54 Interactive software mediates people in natural language. Just like humans use language for human communication, chatbots use natural language to communicate with human users. The main purpose of their creation is to get users to follow the discussion above by trying to make people feel like they're typing.

In this article, we analyze some existing chatbot systems such as ELIZA and ALICE and then conclude that it is easier to create a bot with ALICE due to its simple structure compared to the layer standard as it is correct when creating a bot for ELIZA. . Finally, we discuss our plan. Particularly recommended process is the use of ALICE chatbot system as a private meeting center, student information that helps students with various inquiries about students and universities.

10. International Journal of Innovative Review in Computer Science & Technology (IJIRCST) Volume 6, Issue 3, May 2018 There are command line, graphical user interface (GUI), text display, form-based user interfaces for software applicatio ns. , natural language, etc.

Common user interfaces include GUIs and web-based interfaces, but sometimes other user interfaces are needed. Chatbot-based conversational UIs fit into this space. Chatbot is a type of robot available on the chat platform. Users can interact with them via graphical interfaces or widgets, and trends are changing in that direction. They mostly provide government services i.

to. The application saves data once. On a university website, people often don't know where to find any information. For students or non-employees, getting information can be difficult. The solution to these problems is the school's chatbot, fast, standard and data widget to improve the user experience on the school's website and provide good information to the users.

Chatbots are intelligent tools designed using artificial intelligence (AI) and natural language processing (NLP) algorithms. It has a user-friendly interface that answers questions about labs, admissions, courses, user engagement and GPA, placements, and other events.

11. International Journal of Computer Science and Engineering Open Access Review Articles Volume 5, Issue 5 E-ISSN: 2347-2693 Do computers have an important role in our lives in this world? Computers give us information; they entertain us and help us in many ways.

Chatbot is a program designed to communicate intelligently based on text or speech. But this form is based on text chatbot. The chatbot recognizes user input and provides pre-approval by accessing data using matching patterns. For example, if a user asks "What's your name?" for the boat. The chatbot usually responds like "My name is Chatbot".

' or the chatbot replies, "You can call me as a chatbot," depending on the sentence given by the user. When the entry is created in the database, the user is given a response from the predefined model. The chatbot is used by comparing the patterns, the order of the sentences is recognized and the answers are recorded. These models have been replaced by the phrase Exclusive variants. They are unregistered and cannot answer complex questions and do not work together [1].

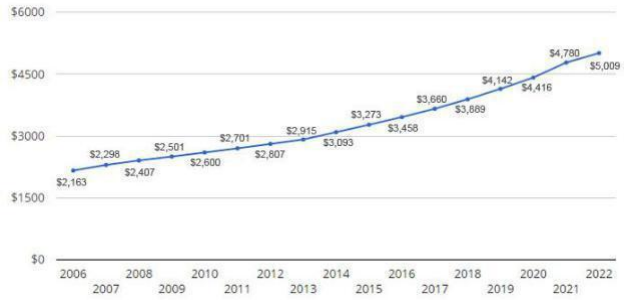
Chatbots are a new technology. Chatbot applications can be found in many areas in the future. This article explains the process of creating and using a chatbot. Comparisons are made, findings are discussed, and conclusions are drawn at the end [2]. Chatbots are an easy way to transfer information from a computer without having to think about finding key words in a search or searching various websi

tes to gather information; users can easily en ter their questions in the language and save t he information.

This article provides information about chat bot design and usage. As can be seen from t he research above, the development and imp rovement of chatbot design is growing at an incredible rate due to the many methods and applications for creating chatbots. Chatbots are great tools for quickly interacting with u sers. They help us by having fun, saving tim e and answering difficult questions. Chatbot s should be friendly and chatty.

This may not always be a business idea, as t here are many ways to create and implement chatbots. Administrators should be involved and agree on the right way to build a chatbo t. In this project, we examine how chatbots a re developed and used in various fields. In a ddition, comparisons were made with other chatbots. A general purpose chatbot should be simple, easy to use, easy to understand an d have a good knowledge base.

While some products have appeared recently, development is needed to show a general ap proach to creating chatbots.



Healthcare spending since 2006 to 2022

BI. METHODOLOGY

1. Review questions: Review questions focu s on understanding how health risk manage ment is effective in protecting public health and safety.

2. Literature review: A literature review will be conducted to identify current reviews an d literature on health risk management. The l iterature review will focus on concepts, valu es, strategies and issues related to health risk management.

The review will also identify the roles and re sponsibilities of different stakeholders, inclu ding governments, businesses, communities and individuals.

3. Design Review: The review design will us e a qualitative study method. This approach will allow for an in-

depth exploration of health risk management in specific situations. Research papers will f ocus on various areas such as health, food sa fety, environmental health, and health and sa fety.

4. Sampling: Purposive sampling will be use d to select participants for the study. Particip ants will be selected based on their knowled ge and skills in health risk management. The se structures may include government offici als, business representatives, community lea ders, and medical professionals.

5.

Data collection: Data will be collected throu gh semi-

structured interviews and data analysis. Inter views will be held with the selected particip ants and information will be given including rules, regulations and warnings about health management. Data collection will focus on understanding the use of risk management st rategies for health, stress and success.

6. Data Analysis: The collected data will be analyzed using thematic analysis.

The data will be copied, coded and organize d by topic. This content will be used to ident ify different trends, challenges and successes in health risk management.

7. Ethical decisions: Ethical decisions will b e made with the consent of the participant, e nsuring confidentiality and anonymity. The r

eview will also comply with ethical guidelin es and regulations regarding the review of h uman subjects.

8. Limitations: Limitations of this study may include sample size and generalization of fi ndings. The information search method may not be suitable for every situation and projec t.

9. Conclusion: The conclusion section summ arizes the research findings and offers recom mendations for improving risk management. These recommendations will be based on the challenges and strengths identified in the ca se study. The results will also identify areas for future health risk management review.

IV. CONCLUSION

In the not-too-distant future, instead of consulting a doctor for diagnosis, you can communicate with an artificial intelligence-supported medical robot via mobile phone, make an order or make an appointment. “Co nsumers today expect technology to be not o nly fast, but accessible and intuitive as digita l trends continue. We often use smartphones, tablets, and other tools to search for the info rmation we need. Thanks to the latest update s, Get and share information. It's now at you r fingertips.

For the past ten years, robots have been perf orming many of the tasks once done by hum ans. But now they're used in just about every thing from automobile manufacturing to inv entory management and invoicing. As the di gital age is facing the continuous developme nt of artificial intelligence and neural networ ks, devices are busy completing human com munication.

Chatbots are becoming more common even i n healthcare, they are also called medical bot s! In the not-too-distant future, instead of consulting a doctor for diagnosis, you can contact an artificially intelligent medical robot via mobile phone, make an order or make an appointment. Healthcare faces a huge challenge and dema nd that you can address when building a chat bot. The role of chatbots in healthcare can b e used effectively to help save valuable doct or time by reducing or eliminating unnecess ary doctor appointments. With costs increasi ng day by day, healthcare organizations are l ooking for ways to reduce costs while impro ving the patient experience. It goes without s aying that the world's shortage of doctors re quires us to advance care with technology so that doctors can again focus on patients who need more. Voice chatbots are undoubtedly beneficial for the entire healthcare industry, saving time, effort and cost, but special atten tion should be paid to efficiency.

A simple mistake in this area can be life-threatening. Adoption of these chatbots is an other big event. As consumers, we have to re ly on new tools to diagnose health problems. The main topic of this article is to diagnose t he symptoms that definitively define the pati ent's disease based on the symptoms. This fe ature is designed to assist the user in getting a diagnostic process that can then be discuss ed with their doctor.

The classification is based on Bayesian algor ithms trained with false data produced by th e distribution of true symptoms for each dise ase. There have been in vitro studies and in vivo user studies, both of which yield suppor tive results. We measured an F1 score of 0.9 42 on synthetic data and a success rate of 76. 271% for real-world users. Additionally, we note that physi

cian-
approved procedures and clinical manageme nt are beneficial.
They have been proven to be effective and a ble to meet the needs of end users.
As a future work, we plan to improve the fu nctionality of the symptom checker by addin g information about rare diseases. We will al so focus on adding new features such as man agement of medical information and automa tic food and physical activity recommendati ons based on the user's healthy consumption.
Finally, once a large enough community of HAB users is established, we will conduct m ore extensive research.

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