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Health Care Chat Bot Using Machine Learning

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ABSTRACT

Medical care is vital to a healthful lifestyle. But it's far more difficult to get scientific help if you have clinical issues. The proposed believed is to grow a sensible Chatbot which could use ML to investigate the ailment and generate the essential facts to talk about the condition with the medical doctor. Medical discourses had been created to lessen scientific charges and improve get right of entry to clinical knowhow. Some Chatbot act as clinical publications, assisting sufferers study their disorder and enhance their health. Users can actually advantage from Chatbot's if they are able to become aware of types of diseases and offer the vital facts. Automated textual content-primarily based diagnostics allow sufferers to engage inside the analysis of their medical issues and offer personalized evaluation with signs. Therefore, humans reflect on consideration on their very own proper and personal balance Man-made speculation has center branches like, recreated insight which learns, look through plan, works on itself utilizing the information and displays the result. To lead major areas of strength for a clinical thought is particularly basic. In few unsocial zed regions outstandingly elusive the social event of master effectively concerning clinical issues.

Keywords: AI, AI Chatbot, AI Chatbot structure, AI healthChatbot's, health Chatbot.

1. INTRODUCTION

Healthcare Chatbot's are having a massive impact on public health way of life. It increased faith and decreased human error. Today's people are addicted to the net however they don't care approximately their non-public protection. They keep away from hospitalization for minor troubles which could turn into severe illnesses within the future. The proposed concept solves this trouble. The idea is to create a Chatbot this is free and available 24/7. The Chatbot is loose and to be had to the consumer anyplace there, whether they may be working in their surroundings, which encourages the consumer to keep and use it. Modern artificial intelligence has developed the point at which humans can learn to software and effectively allows human beings talk It is essential. Maybe of the most well-known model in the new records of the Chabot Siri, i.e. The AI assistant. The well-known software a part of Apple's products. Sir, I Chatbots have become mainstream in 2011. Since then they have got launched their torches Over time, every enterprise began using them. The conversation is using a new trend in UX. Belongs A consumer enjoy for you net The county or provider is mechanically primarily based on the previous Behavior if users create artificial Smart apps like Alexa help you Using your voice to manipulate your thoughts. If you are a client, you can now



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speak with this man-made cognizance. Chatbots on notable illuminating designs which consolidate Facebook, Skype. Today, using chatbots has grown. Customs fields from customer support to life and demise hazard. Chatbots are coming to healthcare It is also powerful in solving fitness problems. Facebook's wellbeing and qualification chatbots are starting to get momentum is released this 12 months allowing healthcare specialists to create ambassadors I changed into informed that this is the path that desires it. A properly example of that is Health Tab, a main organization Bot on the release of a health messaging app. He does now not allow it Users can ask and get hold of clinical related questions. Answer. This saves capital expenses for professional session. Machine mastering is at its height right now and is one example of the use of Chatbot to facilitate progress. It have to also be clarified that the reason of the Chatbot isn't always to diagnose sufferers. The concept became to create a medical chat the use of system learning that might offer a few basic facts approximately the sickness before consulting a doctor. Textbased totally clinical Chatbot help patients percentage their clinical worries and offer a customized diagnosis primarily based on symptoms. After this the affected person may be dispatched to a specialist. This collection of activities saves quite a few time for the instructor. Now, Chatbot are usually ready to help individuals who need scientific assist. In addition, a virtual assistant may be chargeable for reminding customers of medicines and tracking the affected person's fitness popularity. By speaking fluently, Chatbot have interaction with real people. Chatbot are used in applications which includes e-trade customer service, name facilities and on-line games. However, with Chatbot, you can engage with a textual content or voice interface and get answers through system getting to know. Hotspots that aid in the resolution of health issues are emerging in the healthcare sector. Prosperity and Capability Chatbot are beginning to gain appreciation Facebook's stroll changed into released final year Enables healthcare industries to broaden Voyager Chatbots engage with users. A desirable example is Health Tab Prima. Unplug the health bot inside the Messenger app. He does now not permit it Users can ask and acquire their medical queries. Today, the usage of waterfalls extends from customer service in both situations of life and death. Chatbots are getting into the medical services enterprise to assist clear up problems. Health and health chatbots are beginning to benefit recognition in the market. Last 12 months, Facebook started out a message permitting healthcare companies to create chatbots that engage with clients. The essential organization for automating wellbeing on the Nente application, Wellbeing Tab, serves as an exact model. It awards clients to welcome their intelligent questions and get solutions.

2. RELATED WORK

Literature review is a crucial step in the software program improvement manner. Before the tool is advanced, it's far important to decide the time elements, price range and strengths of the enterprise. With all if these conditions are met, the next step is to choose a working device and a programming language that could be used to build the device. Exactly when computer programmers begin encouraging a contraption, they will require extra help. This aids can be acquired from senior applications, books or web sites. This paper contends that because of innovative progression, cell phones have quickly acquired ubiquity, and virtually all clients convey them with them. Here, cell writing computer programs is made to assemble the records from individual element which then, gives the sensible reaction to the patient. This response offers logical help and works with the early recognition of a particular illness and its medicines. The fundamental goal become to convey a reaction which could work with the information get-together and transmission in certifiable time. This ongoing information is transmitted to a web server, encoded, and further evaluated for insights [3]. The layout of the improvement as well as execution sagacious Wi-



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Fi shrewd clinical consideration contraption is depicted. Before designing the system, the above factors are saved in mind whilst designing the gadget. A main a part of the undertaking development branch's work is to do all the correct analyzes which can be required to expand the assignment. Literature review is the most crucial place of software improvement for any project. Before developing the equipment and the related plan, it's far vital to perceive and examine the elements of time, aid requirements, manpower, financial and organizational strengths. After a lot of these questions had been responded and the research executed, the following step is to decide the specification of the software in the computer venture, what kind of working system can be required for the motive, and what software can be required for the venture. Paintings making tracks like system and related sports.

1. Ananya Singh et al. 2023 - This investigation concentrate on gives a composing study of mechanical movements in CAI experts planned to adjust to troubles in the clinical benefits industry. Utilizing the capacities of CAI specialists, the objective of this study is to give specialists, attendants, and medical services heads with answers for regular authoritative difficulties and expanded efficiency.

2. Kevin Dedy Setiawan et al. 2023- This examination bases on the utilization of reenacted information chatbots in blend end, totally objective on investigating their adequacy and breaking point in early mediations and fixes. The motivation driving this conscious forming audit is to investigate centers around including man-made information chatbot age in jumble gauge. A capable outline of the creating changed into done, considering an amount of four picked concentrates as per predefined joining and excusal rules. The assessment convention called for taking a gander at concentrates on that had been distributed in earlier years, with a specific spotlight on papers that had been distributed after 2020. As per research, reproduced knowledge chatbots can assume a critical part in helping clinical experts in expecting issues and going with compelling choices. Man-made information chatbot age has massive cutoff in disorder supposition. By the utilization of assessments and design securing information on limits, chatbots can work on the accuracy and speed of affirmation. It is guessed that proceeded with examination and improvement endeavors will prepare the abilities of AI chatbots and remodel healthcare transport to improve patient effects and sickness management.

3. Renaldo Robert sanjaya et al. 2023- The assessment protocol worried inspecting studies published in exceptional years, with a picked thought on papers from 2020 onwards. The effects admonish that computerized reasoning chatbots will play a vital position in supporting healthcare professionals document ailments and make knowledgeable selections. AI chatbot era has extensive capacity in ailment prediction. By the use of algorithms and device gaining knowledge of skills, chatbots can chip away at the precision and speed of conjecture. Continued with studies and improvement attempts are expected to saddle the abilities of AI chatbots and remodel healthcare transport to improve patient consequences and disease management.

4. Md Afiful Islam Mosumder et al.2023- The goal is to discover the numerous opportunities of carrying out consultations, remedies and different medical processes using Metaverse with the assist of NLP. For this purpose, we suggest an approach that includes the evaluation of texts and sounds near the environment, to be able to create a more immersive revel in, hence presenting a higher degree of conversation among the affected person and the medical doctor. In this well-known studies model, we advocate our technique with moral counseling and therapeutic applications. Implementing this approach



will result in a sensible and dependable patient monitoring gadget that sufferers and clinicians can agree with way to the immersive experience created by Metaverse.

5. **Deborah sattler et al. 2023-** This take a look at proposes to integrate conversational AI into social research platforms to promote non-public narratives for the aged, palliative care needs, or inclined patients from distinct linguistic groups. This have a look at highlights the abilities of AI-based analytics and proposes the use of this era to investigate fitness survey data and create personalized tales that meet the unique desires of every character. The proposed approach aims to enhance affected person engagement with the aid of enhancing affected person care and providing the most shrewd advice derived from survey responses.

6. Akshayta singh et al.2021-Public coverage performs an essential function in determining the development of a nation. Cost, high-quality and accessibility of health offerings determine the nice of fitness. In view of this, this studies work pursuits to broaden an IoT-based health package with a transportable, light, light and low electricity electronic fitness gadget. Prepares and video display units fitness parameters which includes temperature, ECG, heart rate, blood strain and so forth. It offers unique affected person monitoring and care help to reinforce the country's fitness machine from rural to city areas. The kit is available 24/7 because actual-time data can be stored and retrieved from the cloud each time, everywhere. A full-size trouble in rural India is the health practitioner-patient ratio of one: 10,000 that is already being solved with this package, as docs across India can now get right of entry to records from the charts. In addition, our Rasa-primarily based NLP AI bot enables sufferers diagnose their ailments, prescribe remedies, agenda health practitioner appointments and inform caregivers with greater accurate checking out. A web application is also supplied to extend our machine's usability.

7. **Fabian berns et al.2023-**Despite current advances in AI and information technological know-how, the huge quantity of massive statistics to be had to medical and healthcare companies has no longer matched its capacity. Addressing key worries approximately information transparency and protection will help free up these advances in medication, as a consequence aiding research and patient care. Next, in this article I advise a gadget for the specific function of scientific AI. We set out our imaginative and prescient for aligning the scientific functionality of AI with the regulatory necessities of the scientific industry. We recommend guiding standards for data-pushed diagnostic guidelines based on felony frameworks, medical ethics, and professional reasoning. Through this research, we intention at scientific AI structures that now not only provide accurate predictions, but also allow customers to understand and consider the underlying choice-making strategies.

8. K. Venkatesh et al.2023-These robots use artificial intelligence to understand human enter and reply correctly. Three vital areas to recognition on are medication, health, agriculture and education. Today, chatbots may be used everywhere wherein everybody can speak to a pc at any time. The fastest developing mercenary areas are customer service, sales, advertising and vending, and human assets. These predictive offerings are actually being made viable by different chatbots (especially inside the medical area) via advances in AI and facts mining technology. Due to the changing lifestyle in contemporary global, the number of patients is growing hastily each day. As a result, local sanatorium and sanatorium systems are developing unexpectedly. Doctors have to wait longer for patients with busy schedules. Other illnesses take longer to heal. Worldly, coronary heart sickness and lung sickness are common problems. Heart assaults kill four, 444 old and young each day.



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9. T. Poongodi et al.2022- He approached who used to treat human beings like that. The review presents an original PC application designed as a non-public virtual expert, well-programmed and geared up to collaborate in my opinion with patients. The utility is based on unserviceable gadgets and presents complete control of preventive measures, home remedies, herbal schooling sessions, hospital therapy recommendations and expert coverage of diseases well-known in India. Artificial intelligence is gradually being used in scientific offerings. Here, AI-primarily based frameworks for chatbots include robotic verbal exchange, enhancing properly-being, managing college attendance and inducing behavioral adjustments. Investigating the incentive for the use of fitness chatbots can expect adoption. This conversational utility lowers the barriers to entry in scientific workplaces and shrewd places of work, to put in force precise care and exceptional remedy remotely, simply assisting the public.

10. P.Gopinath et al.2022- Although India is a developing country with a population of more than 1.3 billion, drug shortages are a vital problem here. Not only the authorities health facility but also the government sanatorium become visited and it changed into observed that there are not enough doctors to cope with the increase in populace and shortage of docs is one of the reasons of demise of patients. To conquer those troubles, we decided to increase a clinical chatbot the use of artificial intelligence that would provide instantaneous access to any questions from clinical facts. These chatbots assist the patient to find the closest specialist and time table appointments. If the user is affected by a fever by asking a series of questions, the chatbot can provide preventive measures based at the person's responses or recommend a agenda based at the user's and professional's nearest professionals. If the person is seeking out a diagnostic middle, for example, in the event that they need an MRI, the chatbot will offer them with data approximately the nearest labs and their starting and ultimate times. Software design the usage of NLP and gadget gaining knowledge of.

3. EXISTING SYSTEM

A conversational performer that talks with clients in local language is implied as a chatbot. Many Chabot's have been created using textual content conversation, from ELIZA, which imitates a psychiatrist, to Perry, which imitates a schizophrenic patient. Eliza is a famous synthetic therapist. Bot's attempts to condense questions and answers into some key phrases. If the key-word isn't always observed, Eliza will respond with general speaking phrases to keep the communication going. The body needs the body's protein shape.

Disadvantages of Existing System

• Many AI-powered chatbots offer fashionable statistics, however may have problem presenting personalized recommendation or guidelines tailored to every individual's particular health scenario and history.

• Patient fitness statistics is sensitive and there are stresses over the privateers and security of data shared with AI chatbots. It is critical to comply with information protection guidelines inclusive of HIPAA within the US.



REQUIREMENT ANALYSIS

Evaluation of the Rationale and Feasibility of the Proposed System

Chat may be very useful to cause the ailment itself and provide the essential records. Automated text message diagnostics join sufferers with hospital treatment and offer customized diagnostics to aid their signs. Therefore, you should contend with your very own protection and protection.

4. PROPOSED SYSTEM

The proposed idea is to broaden a scientific chatbot the use of synthetic intelligence that could before visiting a doctor, investigate a problem and provide essential information about it. Medical cataracts had been developed to lessen scientific expenses and improve get admission to medical information. Web applications are associated with the proposed method for managing structure advancement. All along, chatbot is portrayed that could turn as supportive to the clients to get the indications of their weights. The chatbot associate can then be added to the specific prosperity region. Internet site with a view to help the opposite humans to advantage the records of clinical in addition to body of workers reports. Data base of the device grants to save current real factors of the individual a couple of catboats go about as reference books that help patients with learning about the unrest and work on their properly being. Talk could be especially profitable to set off the genuine affliction and give the fundamental records. Text-to-message based content diagnostics partners casualties with clinical center treatment and deals with the expense of tweaked diagnostics to coordinate their aftereffects. Thusly, you want to adjust to your very own security. The backend will be careful to methodology input from the chatbot and convert it directly into it to be finished in informational index. We will set up a chatbot the utilization of chatterbot library and moreover assist the bot with finding explicit sorts of key articulations which will get the client's objective. This information will then, be shipped off the backend. The chatbot may be ready to do some steady reasoning and responses without implying the backend. A block diagram is a usage case that is used in the system evaluation to explain, select, as wonderfully as plan machine the set aside and later the looking at information of the clients' moves confined and set aside and relatedly facilitated. It makes sense of the business parts of the proposed device. The client's organized essential food things can be followed this essential mark of transport way. The ever-evolving process for passing the things from the stores to the clients is the focal compute each machine. As such systems are taken on this chatbot and responses are kept as records

Advantages of Proposed System

• 24 hours of carrier. Because AI-powered clinical chatbots offer services via computer systems in preference to people, they could provide offerings 24 hours a day, even if humans are usually at paintings. This manner that patients can get remedy or recommendation at any time of the day or night via chatbots.

• Low price: AI-powered medical chatbots may be supplied at a lower fee than traditional healthcare offerings. This makes it simpler for low-earnings families and medically underserved regions to access health services.

• Services at scale: sensible healthcare chatbots can serve many customers on the identical time. This makes it feasible for many human beings to use it on the equal time, even in crowded towns or regions with confined medical facilities.



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SYSTEM ARCHITECTURE



5. SYSTEM MODULES

1. User Verification and Trait Extraction

2. Features are extracted with a skilled dataset 3. Explanation and commands of illnesses by a health practitioner

1. User Verification and Trait Extraction

This is in which the person's login information is proven. The signs are then extracted the use of a string seek algorithm, wherein the substring representing the signs is identified by the herbal textual content enter. When users at once provide the code call, the system acknowledges the command. However, the laptop also has enter to the system, for example: "When I study, it's exceptional at first, however my eyes get heavy through the years and I begin to see double." In this situation, the computer have to spit out words like "worn-out eyes" and "double up" (no longer options like "study" or "well").

2. Features Are Extracted From a Skilled Dataset Some information captures person enter, generating a list of recommended associated features. We ask the user to verify whether or not humans have any prescribed standards or not. Specific diseases are indexed from the response. Symptoms and recommended signs and symptoms are in addition clarified by asking users a chain of questions and signs and symptoms adapted to the best sickness.

3. Explanation of Diseases and Commands from the Medical Doctor

The process includes listing diseases in a database, comparing every symptom to common sickness characteristics. Next, the characteristic is checked until a suit is observed. They are listed in line with the contribution of the give up customers to the question rank. The chatbot identifies the precise sickness and communicates it to the stop person. The chatbot checks whether the perceived sickness is a chief or minor trouble based totally at the ideas integrated into the chatbot. If the issue is fundamental, the chatbot sends the health practitioner's info and directs the end person to an expert. And if the problem is minor, the chatbot identifies the disease, directs the end consumer approximately first aid or answers and shows seeing a physician as quickly as feasible.



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6. RESULTS AND DISCUSSION

The use of synthetic intelligence remedy chatbots, the consumer can be able to do voice communication and get particular desired outcomes within the shape of voice. The person can solution special and widespread questions saved within the database. Chatbot overall performance relies upon at the Raspberry Pi and database. The foremost reason of the fitness care chatbot machine is to offer offerings to humans in rural and authorities hospitals who're unable to e-book an appointment with a doctor or acquire medical facts. They can solve their problem the use of chatbot. The synthetic intelligence based chatbot gadget gives clinical tips on drugs or sicknesses and is to be had 24*7 hours. With the speech signal input thru the microphone, it's miles compared to the database saved at the Raspberry Pi and remarks is obtained from the database. If the description of the query or the facts associated with the disorder and remedy is not available in the database, the answer will be dispatched from the Google servers. The input speech sign is first transformed from voice to textual content, then from text to speech, and the output signal is taken from the speaker. A person gives Personal information which includes name, age, date of beginning; Assortment of contacts, and so on. Chatbot Solicitation Elements Using the client and normal treatment, the etymological way answers like an infection. They prescribe drugs for a certain disease. Afterwards Requests an appointment on the health center.

Feature	Basic Level Chat bot	Advanced Level Chat bot
Disease Diagnosis	Provides limited diagnostic capabilities for common illnesses.	Offers comprehensive diagnostics for a wide range of diseases.
Information Depth	Supplies basic information about symptoms and diseases.	Delivers in-depth medical knowledge, including preventive care, treatment options, and prognosis.
User Interaction	Text-to-text communication only.	Supports multimodal interaction like voice, text, and images for better accessibility.
Customization	General responses based on predefined rules.	Tailored diagnosis and suggestions based on user symptoms, medical history, and preferences.
Scalability	Limited scalability for handling a large number of users or queries.	Highly scalable with cloud- based architecture to serve multiple users simultaneously.

TA	BL	E

Table of comparisons between basic and intermediate level chatbots with features.



SCREENSHOTS





Certain elements of websites are so fundamental to web design that without them, none of them could possibly operate correctly. Enter the message on the webpage, then send it off correctly.

Basic Information Detail Page



It will provide the best answer if you ask the query.



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Medical Chatbot Page



After that, it will keep asking us any questions we have.

7. CONCLUSION

The objective of this observe is to discover the definition and architecture of AI chatbots and the important thing technology for implementing AI chatbots. In addition, this study additionally examines the kingdom of AI-based chatbot service improvement. Based on this studies study, AI-primarily based scientific schools have proven to be the only device in supplying healthcare offerings. This is proven by way of many examples of AI-powered healthcare chatbots, whose improvement has been extended through the face-to-face lifestyle that has end up the new norm because of the speedy unfold of Covid-19.

Additionally, effective medical faculty AI has been determined to be exceedingly effective in improving healthcare offerings and enhancing the affected person enjoy. On the alternative hand, those scientific colleges that are made via synthetic intelligence have been discovered to have some obvious boundaries. Efforts must be made to triumph over these limitations and to supply better health services, in a spread of ways including increasing their best of statistics collection, the use of strategies evolved thru synthetic intelligence, growing the quantity of qualified health professionals, cooperating and many others. Implement security features.

REFERENCES

- AI Chatbot Technology to Predict Disease: A Systematic Literature Review, Vincent Velasco; Kevin Dedy Setiawan; Renaldo Robert Sanjaya; Maria Susan Anggreainy; Afdhal Kurniawan 2023 4th International Conference on Artificial Intelligence and Data Sciences (AiDAS)
- ReviewVincent;Kevin;RenaldoRobertSanjaya;MariaSu san Anggreainy; Afdhal Kurniawan 2023 4th International Conference on Artificial Intelligence and Data Sciences (AiDAS) Year: 2022 Conference Paper | Publisher: IEEE
- 3. AI Chatbot Technology to Predict Disease: A Systematic Literature Review Vincent Velasco; Kevin Dedy Setiawan; Renaldo Robert Sanjaya; Maria Susan Anggreainy; Afdhal Kurniawan 2023 4th International Conference on Artificial Intelligence and Data Sciences (AiDAS)



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- 4. Enhancing patients Confidence and Trust in Remote Monitoring Systems Using Natural Language Processing in the Medical Metaverse Tagne Poupi Theodore Armand; Md Ariful Islam Mozumder; Kouayep Sonia Carole; Moon-il Joo; Hee-Cheol Kim 2023 International Conference on Intelligent Metaverse Technologies & Applications (iMETA) Year: 2023 | Conference Paper | Publisher: IEEE
- Providing Pooya Moradian Zadeh; Deborah Sattler 2023 IEEE International Conference on Bioinformatics and Biomedicine (BIBM) Year: 2023 | Conference Paper | Publisher: IEEE
- Ru-URB Shreya Bhutada;Akshata Singh;Kaushiki Upadhyaya;Purvika Gaikar 2021 5th International Conference on Intelligent Computing and Control Systems (ICICCS)Year: 2021 | Conference Paper | Publisher: IEEE
- TrustworthyMedical OperationalAI: Marrying AI and regulatiry Requirements Fabian Berns; Georg Zimmermann; Christian Borgelt; Niclas Heilig;Jan Kirchhoff; Florian Stumpe 2023 IEEE International Conference on Big Data (BigData) Year: 2023 | Conference Paper | Publisher: IEEE
- 8. chat and Voice Bot implementation for cardio and ENT Queries using NLP B Dinesh; Prathima Chilukuri; G Preeth Sree; K Venkatesh; M Delli;K R Nandish 2023 International Conference on Innovative Data Communication Technologies and Application (ICIDCA) Year: 2023 | Conference Paper | Publisher: IEEE
- IoT based Chatbots using NLP and SVM Algorithms Asthha Wahal; Muskan Aggarwal; T. Poongodi 2022 3rd International Conference on Intelligent Engineering and Management (ICIEM) Year: 2022 | Conference Paper | Publisher: IEEE
- 10. Aritifical Chat Bot for Patient HealthcarePAnandan;SKokila;SElango;PGopinath;PSudarsan 2022InternationalConference onComputer CommunicationandInformatics(ICCCI)Year: 2022 | Conference Paper | Publisher: IEEE
- Vaibhav Tode, Himanshu Gadge, Prateek Kachare and Sudarshan Madane, CureBot -An Artificially Intelligent Interactive Bot for Medical Diagnostics International Research journal of Engineering and Technology (IRJET)., Vol.7, no.12 (Dec 2020).
- 12. Satyendra Praneel Reddy Karri and Dr Santosh kumar, Deep Learning Techniques for Implementation of Chatbots, 2020 International Conference on Computer Communication and Informatics (ICCCI), Coimbatore, INDIA, (2020) January 22-24.
- 13. Dipesh Kadariya, Revathy Venkataramanan, Hong Yung Yip, Maninder Kalra, Krishnaprasad Thirunarayanan and Amit Sheth, kBot: Knowledge-Enabled personalized Chatbot for Asthma Self-Management, 2019 IEEE International Conference on Smart Computing (SMARTCOMP), Washington, DC, USA,(2019) June 12-15.
- R. Dharwadkar, N.A. Deshpande, A medical chatbot. Int. J. Comput. Trends Technol. (IJCTT). 60(1) (2018).
- 15. S. Divya, V. Indumathi, S. Ishwarya, M. Priyasankari, S.K. Devi, A self-diagnosis medical chatbot using artificial intelligence. J. Web Dev. Web Designing **3**(1) (2018).
- 16. N. Jyothirmayi, A. Soniya, Y. Grace, C. Reddy Kumar Kishor, B.V. Murthy Ramana, Survey on chatbot conversational system. J. Appl. Sci. Comput. **6**(1) (2019).
- Oh, Y. J., et al. "A systematic review of artificial intelligence chatbots for promoting physical activity, healthy diet, and weight loss." International Journal of Behavioral Nutrition and Physical Activity 18 (2021): 1-25.



- 18. Global Chatbot Market Size, https://markets.businessinsider.com/news/stocks/gl obal-chatbot-market-anticipated-to-reach-9-4-billionby-2024-robust-opportunities-to-arise-in-retailecommerce-10 28759508
- Laranjo L, Dunn AG, Tong HL, Kocaballi AB, Chen J, Bashir R, Surian D, Gallego B, Magrabi F, Lau AYS, Coiera E. Conversational agents in healthcare: a systematic review. J Am Med Inform Assoc. 2018 Sep 1;25(9):1248-1258. doi: 10.1093/jamia/ocy072. PMID: 30010941; PMCID: PMC6118869.
- 20. S. Ayanouz, B. Abdelhakim and M. Benhmed, "A smart chatbot architecture based NLP and machine learning for health care assistance", Association for Computing Machinery Proceedings, pp. 1-6, 2020.