17909-57113-1-ED rev 2.docx

by Turnitin Check

Implementation Open Artificial Intelligence ChattGPT Integrated With Whatsapp Bot

Putri Ariatna Alia[1*], Johan Suryo Prayogo[2], Rony Kriswibowo[3], Agung Teguh Setyadi[4]

[1]Faculty of Sains and Tecgnology, Universitas Anwar Medika, Jl. Raya KM 33 Jalan Bypass Krian, Sidoarjo East Java 61262, Indonesia.

[2]Faculty of Sains and Tecgnology, Universitas Anwar Medika, Jl. Raya KM 33 Jalan Bypass Krian, Sidoarjo East Java 61262, Indonesia.

[3]Faculty of Sains and Tecgnology, Universitas Anwar Medika, Jl. Raya KM 33 Jalan Bypass Krian, Sidoarjo East Java 61262, Indonesia.

[4]Faculty of Sains and Tecgnology, Universitas Anwar Medika, Jl. Raya KM 33 Jalan Bypass Krian, Sidoarjo East Java 61262, Indonesia.

*putriariatna@gmail.com

Abstract. The rapid development of internet technology has led to changes in human habits in terms of seeking information. Now humans have a tendency to use smartphones to find information, especially by using the WhatsApp application. According to data compiled by creative agency we are social in 2023. Whatsapp is in the top position of the most used application, reaching 92%. Artificial intelligence is used as a tool to create remote services to customers because there are no restrictions on working time and can only be accessed using a smartphone. GPT (Generative Pre-training Transformer) chat technology has the ability to answer questions, as well as understand the context of the conversation and generate meaningful text like a remote conversation with humans. ChattGPT can provide information to users with these capabilities, especially in terms of health. In the research there is an integration process between Chattgpt and Whattsapp, by entering the API (Application Programming Interface) key Chattgpt into Whattsapp with the help of javascript programming language. So that the artificial intelligence system using ChattGPT can be implemented on whattapp.

Keywords: ChattGPT, Integrated, API (Application Programming Interface) key, Artificial intelligence

1. Introduction

In this digital era, technological advancements have opened the door for major transformations in various sectors, including in healthcare. One innovation that has attracted attention is the implementation of ChatGPT on instant messaging platforms such as WhatsApp in the context of healthcare. ChatGPT, developed by OpenAI, is an artificial intelligence model capable of understanding and generating text in a human-like manner [1]. Utilizing ChatGPT in healthcare, especially through WhatsApp, can provide a number of significant benefits [2]. In the initial approach, ChatGPT can serve as a virtual assistant that provides health information, gives simple treatment suggestions, and answers

Commented [SR1]: Cite some articles that support the urgency of this topic.
Add a paragraph about the research gap followed by a description of the research title.

Commented [pa2R1]: I have fixed it sir, hopefully my journal can be accepted. Aamiin

Commented [pa3R1]:

Commented [SR4]: cite 2-3 articles that support this statement

Commented [pa5R4]: I have fixed it sir, hopefully my journal can be accepted. Aamiin

general health questions to WhatsApp users. The first benefit of this implementation is the availability of fast and accurate health information [3]. Users can easily access health information, disease symptoms, and health tips without having to search through various sources [4]. ChatGPT can provide more personalized and reliable answers, helping people improve their health literacy[5]. In addition, the use of ChatGPT on WhatsApp can streamline the initial medical consultation process. Patients can ask questions regarding their symptoms or health conditions[6], and ChatGPT can provide initial guidance or direct them to seek further treatment. This can help in early detection of health issues and increase public awareness of preventive measures[7]. By combining artificial intelligence and easy access through WhatsApp, the implementation of ChatGPT in healthcare can be a step towards providing more affordable, fast and efficient healthcare services[8]. As such, this technology can act as a catalyst to achieve the global goal of improving overall public health.

Telemedicine is a concept that allows interaction between patients and healthcare professionals without physical presence in the same location. The utilization of telecommunication technology in telemedicine has opened the door for globally accessible healthcare[9]. A chatbot, as an artificial intelligence that can communicate in real-time, provides an interactive and user-friendly interface. In the context of telemedicine, a chatbot can be a virtual assistant that assists patients in undergoing medical consultations, providing health information, and even guiding patients in the monitoring of certain health conditions[10], [11]. Chatbots enable better accessibility for medical consultations, especially for those who live in remote areas or are hard to reach by traditional healthcare facilities. Patients can easily communicate with the chatbot through an online platform, reducing geographical barriers. Chatbots can help in continuous health monitoring[12]. Patients who have chronic conditions can use chatbots to record symptoms, undergo regular monitoring, and receive treatment-related advice based on the data collected[12].

2. Methods

This research uses the Software Development Life Cycle (SLDC) methodology[13]. Software Development Life Cycle (SLDC) is a work stage used to determine software makers to determine the steps that must be taken to process the development of a software. The stages used are requirements analysis, design, system, implementation, verification and maintenance[6]. The design used in this method is a waterfall model where this model requires users to create software in a coherent manner according to the sequence in the Software Development Life Cycle (SLDC)[14].
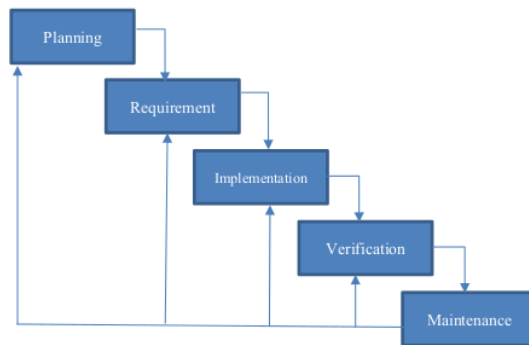
Commented [SR6]: cite 2-3 articles that support this statement

Commented [pa7R6]: I have fixed it sir, hopefully my journal can be accepted. Aamiin

Commented [pa8R6]:

Figure 1. Waterfall Model

0XXXXXX-02

2.1 Project planning

Define the specific needs and objectives of implementing ChatGPT on WhatsApp in a healthcare context. Create an account on ChatOpenAI, to obtain the API key of chattGPT. After that, prepare an adequate program with javascript and C++ programming languages. Prepare a whatsapp account to link with the program that will be created.

2.2. Requirement

The API key that has been obtained from ChatOpenAI is a way to create artificial intelligence in a system, so that the API key is likened to a robot that will produce an answer to the question. after that it is integrated into WhatsApp so that it can answer questions created by humans. as depicted in Figure 2.
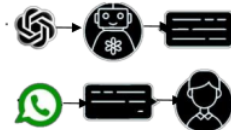

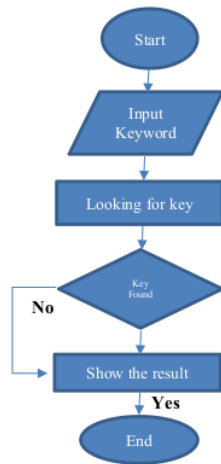Figure 2. requirement API key for whatsapp

2.3 Implementation

Figure 3. Whatsapp Bot Flowchart

0XXXXXX-03

Commented [SR9]: Expand the description to at least 3 sentences.

Commented [pa10R9]: I have fixed it sir, hopefully my journal can be accepted. Aamiin

Commented [pa11R9]:

Computer The framework of this research is a series of systematic steps to solve the problem, including the following process for creating a whatsaap bot [2]. Figure 3 shows a Whatsapp bot created with @botfather and provides access to the creation process. This is done by signing up to @botfather. When you find a parent bot, the bot command is created in /ai. You will receive an automated bot response asking for your bot name. The bot searches the OpenAI ChatGPT database for related keywords. A keyword search will display results if the keyword you entered is present. Conversely, if the keyword you entered is missing, other answers will be displayed and the search will be completed. This subsection explains the steps to integrate and implement ChatGPT with WhatsApp bots.

2.4 Verification.

Test the chatbot functionality to ensure correct responses to queries. Conduct performance testing to ensure the chatbot can handle the expected volume of users and respond quickly. Questions that have been asked to the chatbot will be verified by asking the same thing to people or systems that are experts in their fields. for example in Figure 5 the questions given are verified by someone who is an expert in their field. the verification is like in Figure 7, we asked the doctor with the same question.

2.5 Maintenance

Implement monitoring tools to track chatbot performance and identify potential issues quickly. Continuously update and improve the ChatGPT model based on the latest trends and user response. Performance monitoring on the chattbot is done once every 10 minutes. If more than 10 minutes then the npm start command will be called to start the chattbot again. Further research would be better done to provide different questions, especially in the world of health. whether the answer will be validated valid or not by the expert.

3. Results and discussion:

Creating a chatbot with WhatsappBot using ChatGPT makes it easier to search for information. Among them are diagnosing diseases based on disease symptoms and determining the output of a C++ program. The experimental results are displayed in written format [15]. Testing is carried out by checking the application repeatedly and thoroughly to ensure that the system is free from bugs and errors. As part of the first stage, Figure 4 is the first experimental illustration, namely calling the npm start command meaning the bot is started [16]. At this stage the chatbot is expected to be able to provide a response as a guide, and the results are as expected (an example is shown in Figure 5). The desired output format is shown in Figure 5. This shows that the chat starts with a dialogue .ai question and then the Bot can respond according to the expected instructions. In the next stage, the chatbot needs to provide the correct answer in the programming language and the results are as expected, as seen in Figure 5. The integration of AI and ChattGPT has worked as expected. Nearly all experiments were run multiple times without any errors in the system or response [17]. This is an advantage that is present in the OpenAI ChatGPT system which is integrated into the WhatsApp bot.

Figure 4. Views on MINGW.

0XXXXXX-04

Commented [SR12]: Expand the description to at least 3 sentences. explain the method used

Commented [pa13R12]: I have fixed it sir, hopefully my journal can be accepted. Aamiin

Commented [pa14R12]:

Commented [SR15]: Expand the description to at least 3 sentences.

Commented [pa16R15]: I have fixed it sir, hopefully my journal can be accepted. Aamiin

Commented [pa17R15]:

Commented [SR18]: Cite some articles that support your findings

Commented [pa19R18]: I have fixed it sir, hopefully my journal can be accepted. Aamiin
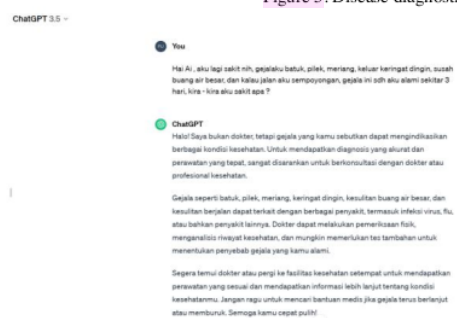
Commented [pa20R18]:

Figure 5. Disease diagnostic test

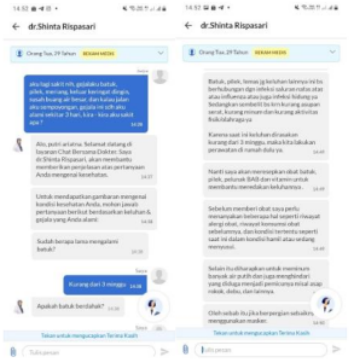Figure 6. Diseases Diagnostic Test Using Open AI Website.

Figure 7. Diseases Diagnostic Test With dr.Shinta Rispasari From Alodoc.com

Whatsapp makes it easy for users to find the information they want. For example, if someone experiences symptoms of a disease while the health facility is far from home, then first aid can determine the diagnosis of the disease through artificial intelligence, in this case AI has been implemented into Whatsapp, making it easier for users[2], [18]. This has been proven in Figure 5, the response from artificial intelligence answers the diagnosis of the disease, so this technology has been proven to help someone experiencing symptoms of disease and treat it early. From figure 7 was confirmed by Dr. Shinta Rispasari from Alodoc.com. So that for the need to find information remotely it is more efficient to use this technology. However, further research needs to be done whether this technology is appropriate for diagnosing all disease symptoms. Searching for answers to the same questions on the implementation of chattgpt on whatsapp and the chattgpt website is because artificial intelligence works based on many keywords so that if done at different times it will produce different answers, and the size of the data sent in the form of questions will affect the length of the answer, so that the answer on the chattgpt website in Figure 6 is longer than the answer on whattsapp bot in Figure 5.

Figure 8. Test the Output a Program from implementation chattGPT at whatsapp.

Commented [SR21]: there are two pictures 7?

Commented [pa22R21]: I attach the second image as a validation that the answer given by the AI is valid, because it matches the compiler.
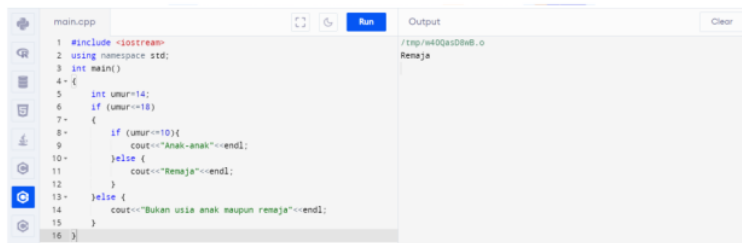
Commented [pa23R21]:

Figure 9. Test the Output a Program from compiler C++ .

The next implementation in Figure 8 is the implementation of artificial intelligence used to search for answers in the c++ program. and the results show correct. The comparison is done by searching for answers on the c++ compiler platform and the implementation of artificial intelligence on WhatsApp. And it can be proven that it produces the same answer in Figures 8 and 9. So that in terms of finding answers the c++ chattgpt program is proven valid.

4. Conclusions:

The integration between open AI and WhatsApp is an innovation to make it easier for humans to do many things, in this research making it easier to find information. The implementation of Chattgpt into Whatsapp can make it easier for users to find information, especially information about health and

education. The information provided by the WA chatbot is given in detail and systematically so that it is considered more efficient because users do not need to go to the hospital to diagnose the disease. Chatbot, as an artificial intelligence that can communicate in real-time, provides an interactive and user-friendly interface. In the context of telemedicine, a chatbot can be a virtual assistant that assists patients in undergoing medical consultations and providing health information [11]. However, to validate the chattbot's answers from all the symptoms of the disease, further research is still needed.

Acknowledgments

References

[1] B. Setiaji, E. Utami, and H. Al Fatta, "Membangun Chatbot Berbasis AIML dengan Arsitektur Pengetahuan Modular," *SEMNASTEKNOMEDIA ONLINE*, vol. 1, no. 1, pp. 18–15, Jan. 2013, Accessed: Dec. 28, 2023. [Online]. Available: https://ojs.amikom.ac.id/index.php/semnasteknomedia/article/view/743

[2] A. Suparno and S. Yos Sudarso Purwokerto, "Chat Bot sebagai implementasi Pemanfaatan Teknologi Artificial Intelligence dengan Channel Telegram," vol. 12, p. 2020, doi: 10.33488/1.ma.2.1.275.

[3] M. N. Fauzy and K. Kusrini, "CHATBOT MENGGUNAKAN METODE FUZZY STRING MATCHING SEBAGAI VIRTUAL ASSISTANT PADA PUSAT LAYANAN INFORMASI AKADEMIK," *Jurnal Informa : Jurnal Penelitian dan Pengabdian Masyarakat*, vol. 5, no. 1, pp. 61–67, Aug. 2019, doi: 10.46808/INFORMA.V5I1.70.

[4] R. N. Astuti and D. M. Fatchan, "PERANCANGAN APLIKASI TEKNOLOGI CHATBOT UNTUK INDUSTRI KOMERSIAL 4.0," *e-Prosiding SNasTekS*, vol. 1, no. 1, pp. 339–348, 2019, Accessed: Dec. 28, 2023. [Online]. Available: https://journal.unusida.ac.id/index.php/snts/article/view/103

[5] G. Fontanesi *et al.*, "Artificial Intelligence for Satellite Communication and Non-Terrestrial Networks: A Survey," Apr. 2023, Accessed: Dec. 19, 2023. [Online]. Available: http://arxiv.org/abs/2304.13008

[6] M. Hendra and N. Handayani, "DESIGN IMPLEMENTASI KECERDASAAN BUATAN PADA CHATBOT LINE DALAM PERMAINAN TEBAK ANGKA," *Joutica : Journal of Informatic Unisla*, vol. 4, no. 1, pp. 226–231, Mar. 2019, doi: 10.30736/JTI.V4I1.282.

[7] "View of Optimasi Business Process Improvement Berbantuan Metode FLASH dengan Integrasi API Trello." Accessed: Dec. 19, 2023. [Online]. Available: https://jurnal.iaii.or.id/index.php/RESTI/article/view/2824/404

[8] P. Kecerdasan Buatan Whatsapp Chatbot untuk Mahasiswa Ruly Suryana, M. Aryanto, R. Kurniawan, K. Sabda Gusti Prabu Satmata, and A. Saifudin, "Jurnal Teknologi Sistem Informasi dan Aplikasi," vol. 5, no. 1, pp. 37–46, 2022, doi: 10.32493/jtsi.v5i1.15487.

[9] S. Mulyatun, H. Utama, and A. Mustopa, "PENDEKATAN NATURAL LANGUAGE PROCESSING PADA APLIKASI CHATBOT SEBAGAI ALAT BANTU CUSTOMER SERVICE," *Journal of Information System Management (JOISM)*, vol. 2, no. 2, pp. 12–17, Jan. 2021, doi: 10.24076/JOISM.2021V3I1.404.

[10] Z. Munawar, H. Soerjono, N. I. Putri, Hernawati, and A. Dwijayanti, "Manfaat Kecerdasan Buatan ChatGPT Untuk Membantu Penulisan Ilmiah," *TEMATIK*, vol. 10, no. 1, pp. 54–60, Jun. 2023, doi: 10.38204/TEMATIK.V10I1.1291.

[11] E. Larasati Amalia and D. Wahyu Wibowo, "Rancang Bangun Chatbot Untuk Meningkatkan Performa Bisnis," *Jurnal Ilmiah Teknologi Informasi Asia*, vol. 13, no. 2, 2019.

[12] M. A. Hakim, "Pembangunan Aplikasi Chatbot Midwify Sebagai Media Pendukung Pembelajaran Ilmu Kebidanan Berbasis Android Di Stikes Bhakti Kencana Bandung," Mar. 2019, Accessed: Dec. 28, 2023. [Online]. Available: http://elibrary.unikom.ac.id

[13] "View of Sistem Tutorial Berbasis Kecerdasan Buatan Pada Proses Pengambilan Keputusan Perawatan dan Perbaikan Gitar." Accessed: Dec. 19, 2023. [Online]. Available: https://jurnal.iaii.or.id/index.php/RESTI/article/view/842/127

[14] "View of Implementasi Chatbot sebagai Virtual Assistant Penerimaan Mahasiswa Baru pada Universitas Bumigora." Accessed: Dec. 19, 2023. [Online]. Available: https://journal.universitasbumigora.ac.id/index.php/bite/article/view/1664/987

[15] "View of Application of Capital Market Investment Planning Expert System Using Website-Based Forward Chaining Method." Accessed: Dec. 19, 2023. [Online]. Available: https://pels.umsida.ac.id/index.php/PELS/article/view/1318/917

[16] O. Morin *et al.*, "An artificial intelligence framework integrating longitudinal electronic health records with real-world data enables continuous pan-cancer prognostication," *Nature Cancer 2021 2:7*, vol. 2, no. 7, pp. 709–722, Jul. 2021, doi: 10.1038/s43018-021-00236-2.

[17] "View of Open Artificial Intelligence Analysis using ChatGPT Integrated with Telegram Bot." Accessed: Dec. 19, 2023. [Online]. Available: https://eltikom.poliban.ac.id/index.php/eltikom/article/view/724/110

[18] J. Chatterjee and N. Dethlefs, "Scientometric review of artificial intelligence for operations & maintenance of wind turbines: The past, present and future," *Renewable and Sustainable Energy Reviews*, vol. 144, p. 111051, Jul. 2021, doi: 10.1016/J.RSER.2021.111051.

17909-57113-1-ED rev 2.docx