Helping People Find Homes with AI

GAURAV YADAV[1,] DHRUV[2]

[1,2]DEPARTMENT OF COMPUTER SCIENCE ENGINEERING. KR MANGALAM UNIVERSITY.

ABSTRACT :

Aging infrastructure remains a crucial problem for everyone ,thus; to help; this matter and to propose a project that will be using AI to build a chatbot that can help in such situations is relevant.

People can have their queries answered quickly, and they can also easily receive additional information, if information about the government's help to get money or the logistics of the application has been changed and the like. The chatbot offers instant responses to user queries, assisting individuals in locating government schemes, eligibility requirements, and application procedures without delay and confusion.

Although we make chatbot of the most straightforward sort, all sorts of users can smoothly act with AI designed to help them as the intuitive interface ensures the chatbot is user-intelligent and the chatbot has the capability to communicate and guide the user in finding the best housing solution. The part about interactive navigator was mainly doing that, however, now the system also helps the user feel less stressed and more.

1. Introduction

Affordable housing is a way to survive, take chances and be honored and also an important source of a person's living. Yet, millions of people experience difficulties in finding clear info on eligibility, their legal rights, and housing benefits as they try to get the required information through various channels. This is where the chatbot comes in as it can aid them in this area that they lack.

Therefore, we came up with a Chatbot to address this issue in the real world.

We have designed an intelligent chatbot that is not only polite but is also highly knowledgeable in the field of eligibility requirements, many housing programs, and the real user's requirements. It answers questions such as:

"Can I apply for housing in my city?"

"What is the necessary paperwork to be completed by me?"

"what are SBI bank loan rules?"

"Which is the best city to live in India"?

Literature Review

Governments everywhere care a lot about affordable housing, especially in cities where tons of people live. It's getting harder and harder for people to find homes they can actually pay for, which is a huge problem for families looking for a place to live. People have been trying to fix this issue in all sorts of ways for years, like changing the rules or giving money to help. But often, no one thinks about how easy it is for people to actually find out about housing programs, who can apply, and how to do it.

AI and Automation in Social Services

Artificial Intelligence has gotten way more popular in the last ten years. Because of this, we're seeing big changes in fields like healthcare and education. AI is great at doing things automatically, checking out tons of info, and answering right away. That makes it ideal for helping more people get the assistance they need. More and more studies show that AI could really do some good for society. For example, Joubert et al. (2020) say that AI can make services better by doing easy tasks on its own and giving quick assistance to people who may not be able to use tech because they don't know enough about it, or don't have the means.

Chatbots are now a go-to AI thing in social services. They're an easy, quick way for folks to get what they need from tricky systems just by talking like normal. Bickmore and Pfeifer (2021) say chatbots aren't only tools; they want to make services feel more human. People can ask questions, get answers just for them, and figure out tough stuff without any trouble.

3. Research Gap

In a modern era, AI is everywhere basically in every field in various sectors, it has capability to solve or help people in various ways. As AI has direct application in solving affordable housing issues through intelligent and user friendly tools. While we do research we found there is some lack of real-time ,3d model supporting and easily accessible chatbot solutions which can directly solve or address the problems of finding house at appropriate places.

4. Objective

- To add real time 3D model rendering (GLB format) into web based chatbot environment for the purpose of interaction enhancement.
- To include speech to text functionality ,allowing for voice-based communication with chatbot.
- To find and demonstrate how 3d model can improve user understanding user understanding.
- To evaluate the capability of 3d enhanced chatbot systems in comparisons to simple chatbots.

5. Methodology

Our AI-powered chatbot's methodology was centered around two main parts namely; Natural Language Understanding (NLU) and a domain-specific knowledge base. Our aim in this line of work was to come up with a tool that would not only be capable of accurately interpreting user queries concerning affordable housing but also could be the one to respond quickly and relev ...

It is important to ensure that the chatbot's core remains strong and to do so, one of the most significant strategies is its domain-specific database which is built upon open sources of housing schemes, policy files, and government and NGO resources.

Develop a chatbot that is intelligent, compassionate, autonomous, and different from existing smart gadgets was our purpose. A system is designed to have the ability to learn without human intervention is self-training. The more it is us ...

- The information collected is actually real questions the user asks. The chatbot becomes more efficient as it grasps the new types of queries and the actual user's intention.
- The chatbot always keeps on getting smarter the more people use it. The bot deploys a machine learning algorithm to constantly refine its knowledge complemented by the users' feedback, thus no manual activity is needed.
- The chatbot is able to both collect real-time data and learn autonomously. If a correction is made by the user or the query is asked in a different manner, at that exact moment, the bot is able to teach itself. In the end, as it accumula ...

FLOWCHART: INPUT – NLU – INTENT CLASSIFICATION – QUERY DATABASE – RESPONSE GENERATION - OUTPUT
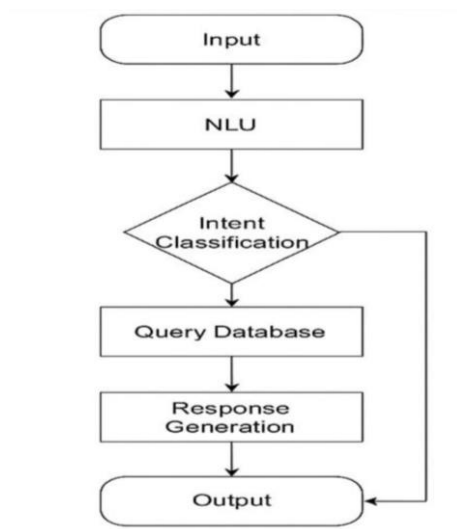

6. Results/Findings

The primary goal of our research was to made a chatbot that can help users in finding their dream houses by assisting them in understanding and accessing information related to affordable housing. The chatbot was built using the OpenRouter API with the Claude 3-sonnet model, which allows users to generate intelligent and relevant responses. For basic visual representation , cloud 3d sinnet was integrated to provide users with simple view of housing layouts.

For example , The chatbot follows a straightforward working process : the user asks a query – such as "How to apply for the PMJAY schemes?" or types "what is SBI loan schemes for housing loans" – and the chatbot instantly replies clear and impactful responses.

Now our working of our chatbot is-
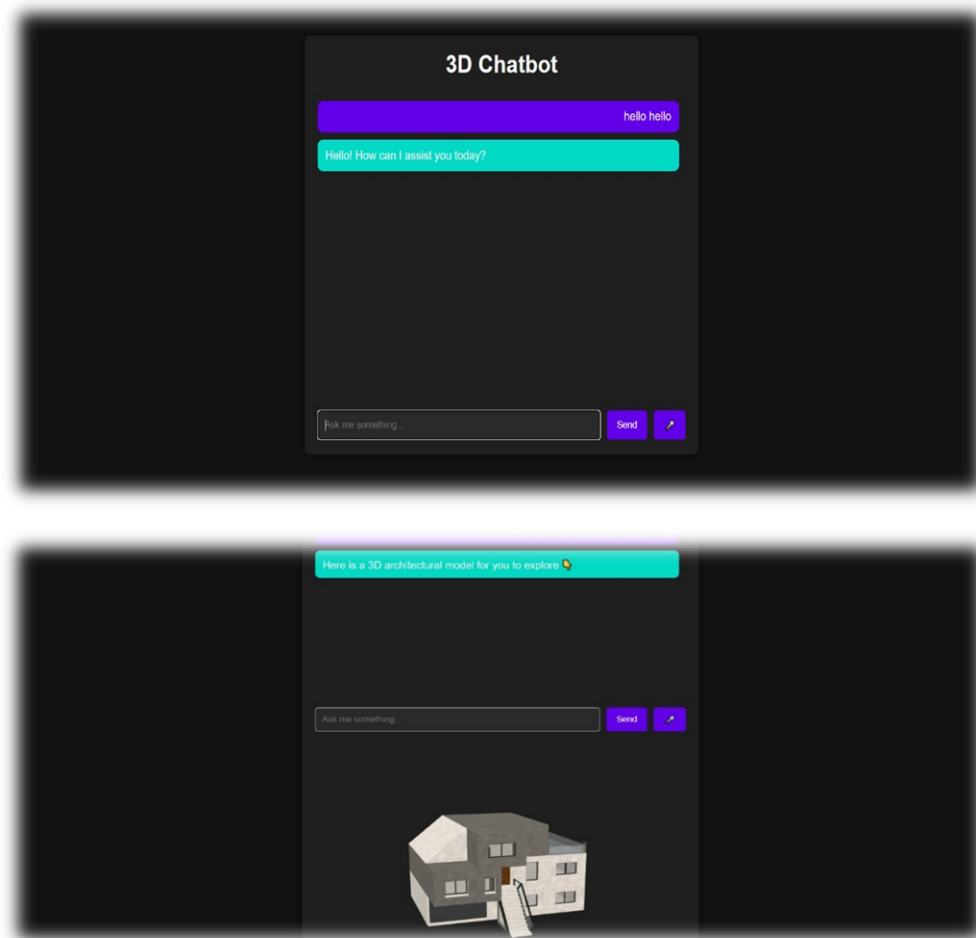
7. Discussion

Affordable living isn't just a matter of building houses it's a sense of creating shelter, ensuring stability, and making sure that all have a place to belong. The task of accommodating the growing demand for homes in urban regions is not at all about increasing the number of buildings but about guaranteeing equity through affordability and accessibility and constructing dwellings which address people's true needs.

This is where AI can tremendously contribute. Imagine AI going through extensive data to find out the places that lack housing, which are the most cost-effective materials, and what are the spare parts of the city that can be reshaped. Instead of taking action after a particular difficulty has surfaced, AI can help the city planners and policy analysts to forecast the future, manage the resources more effectively, and make decisions that bring benefits to the community.

Usage of AI is most beneficial by giving life to the complex string of the housing policy document. In this demonstration, a chatbot was created to be the user's virtual assistant—chatting with people, explaining the basis of the eligibility, and assuring that no one is left alone with the filling of documents. AI of this type is not just a support tool but an enabler that links the local authorities, the building companies, and the public in such a way that the system of conducting business with these entities is more direct and understandable for all.

Nevertheless, the use of AI is not without its obstacles. Problems like the safeguarding of data privacy, removing algorithmic bias, and ensuring equal access to technology need to be solved. Public interest is the ultimate goal of AI if it is designed with fairness, accountability, and inclusivity in mind. Dhruv and Gaurav Yadav's chatbot is a prime case of what AI can do with direction in the area of social responsibility. It's almost like a friend that can do things beyond a virtual assistant - like informing people and ensuring their presence when talking about the housing issue.

Chart 2: Housing affordability*
% of median family income

Debt service (lhs) — Equity downpayment (rhs)

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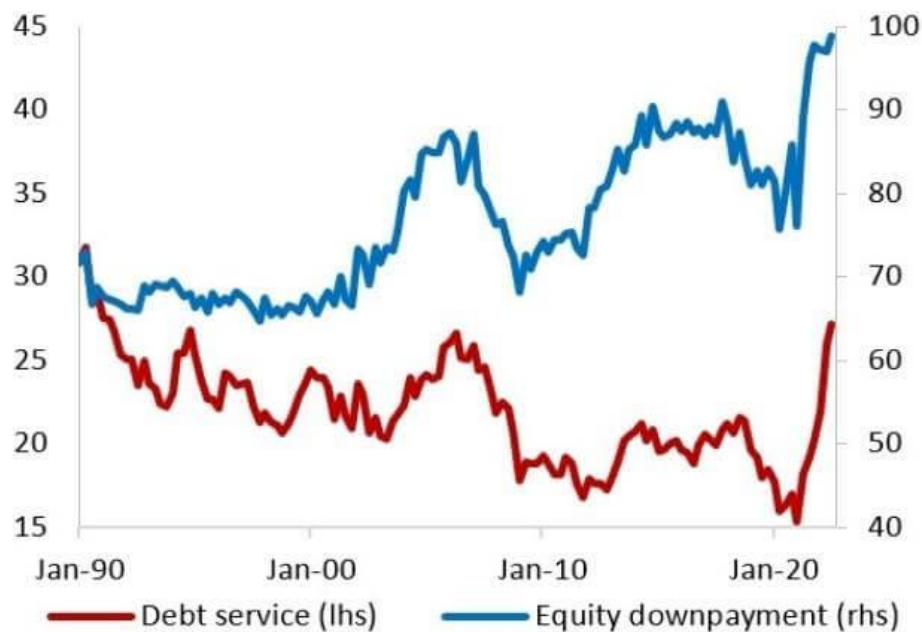
8. Conclusion

This paper demonstrates the successful implementation of a AI based chatbot on affordable housing . This chatbot offers a powerful combination of speed and accuracy , making suitable for real time application.

Through this project , it is evident that AI affordable chatbot can be easily deployed for live questions using python flask and open cv.

Future work:
1) Chatbot will include more 3d sinnet visualization.
2) With better UI and design.

7. REFERENCES

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Author profile:

[Gaurav yadav and Dhruv] both are B. tech CSE students. Their research interests includes computer vision , machine learning and chatbot working applications. This is our first academic project involving deep learning and practical AI applications.