Innovative Journal for Opportunities and Development in Science & Technology,
Volume 4, Issue 2, March. 2024
Paper Id: – IJ2023V4I2 -2 A-D
ISSN 2582-6026

CHATBOT TO DETERMINE INDIVIDUAL'S PRAKRITI

[1]JANHVI V. KATAKDHOND, [2]TANVI D. KAMBLE, [3]SUBHAN A. RAMPURE, [4]TANVI U. KADAM

[5]ASST., PROF. SHEETAL P. INGOLE, [6]PROF. SANTOSH S.DOIFODE

[1]Diploma Scholar, Department Of Computer Engineering , Trinity Polytechnic ,Pune
[2]Diploma Scholar, Department Of Computer Engineering ,Trinity Polytechnic ,Pune
[3]Diploma Scholar, Department Of Computer Engineering ,Trinity Polytechnic ,Pune
[4]Diploma Scholar, Department Of Computer Engineering ,Trinity Polytechnic ,Pune
[5]Asst., Professor, Department Of Computer Engineering , Trinity Polytechnic, Pune
[6]Professor, Department Of Computer Engineering , Trinity Polytechnic ,Pune
[1]janhvikatdhond@gmail.com
[2]tanvikamble@gmail.com
[3]subhanrampure.64@gmail.com
[4]tanvikadam2902@gmail.com
[5]ingolesheetal18@gmail.com
[6]doifode.santoshn@gmail.com

ABSTRACT- Using an artificial intelligence-powered chatbot, this literature review explores the link between traditional Ayurvedic principles and modern technology, providing a novel approach to Ayurvedic Prakriti evaluation. Ayurveda is a personalized medicine that categorizes individuals into three prakriti types: Pitta, Kapha, and Vata. We provide an alternative to the time-consuming traditional prakriti examination process: a website with a chatbot that can swiftly determine an individual's ayurvedic constitution.A chatbot that provides personalized health recommendations and educational resources based on Ayurveda aims to expedite the assessment procedure. Additionally, by enabling telemedicine consultations, the website contributes to closing the gap between conventional ayurveda treatment and modern healthcare. Through the use of machine learning algorithms to analyze user responses and contribute to an anonymized data set, a chatbot can identify major doshas and distinct Prakriti.

I. INTRODUCTION

Ayurveda, the ancient science of healing, holds the distinction of being the world's oldest known form of health care,dating backover 5000years in India. Revered as the "mother of all healing," Ayurveda has garnered increasing global attention for its profound impact on the realm of healthcare, promising to enhance the health and longevity of individuals worldwide.

Ayurveda is fundamentally a science of self- understanding, focusing on unraveling the unique constitution or nature of individuals. By comprehending one's inherent balance of energies—referred to as the constitution or Prakruti—individuals gain insight in to how they interact with their environment, enabling informed choices conducive to better health.

The essence of Ayurveda lies in its definition of disease as the natural consequence of living out of harmony with one's constitution. Our constitution represents the intrinsic equilibrium of energies within our bodies and minds, influencing everything from physical attributes to predispositions for specific health challenges.

ISSN 2582-6026

Ayurveda posits that each individual's pathto optima lhealth is distinct, shaped by their unique constitution.

The Traditional Approach to Ayurveda:

While individuals embody a combination of the three doshic energies, acknowledging the significance of Pitta as metabolism, Kapha as structure, and Vata as mobility is crucial for understanding the holistic nature of Ayurveda. A Clinical Ayurvedic Specialist conducts a comprehensive two-hour consultation, evaluating physical,emotional,and spiritual aspects to identify the balance and imbalance of energies.

The consultation leads to the creation of a personalized treatment program encompassing diet, herbs ,aromas,colors,yoga,and meditation to restore or maintain balance. Furthermore, Ayurveda introduces the concept of Prakriti, encompassing seven distinct constitutional types, contributing to the comprehensive understanding and applicationof this ancient healthcare system.

Chatbots: Abrief introduction

In the evolving landscape of digital communication, chatbots have become integral in reshaping interactions between users and businesses. Within this realm, menu-based chatbots stand out, offering astructured and intuitive conversational

experience. Their functionality is under pinned by a fusion of advanced technologies that seamlessly merge artificial intelligence with user-centric design. These chatbots, driven by Natural Language Processing (NLP), adeptly interpret and respond to user inputs, ensuring a nuanced understanding of intent within the structured confines of a menu. Complemented by Machine Learning algorithms, they continuously refine responses, adapting to evolving user needs. The decision tree structures, rooted in AI, serve as the backbone, guiding users through logical flows within the menu and creatinga user-friendly conversational experience.

Intentre cognition technologies enable these chatbots to discern user goals, streamlining the user experience and providing personalized responses aligned with individual intents and preferences. Secure authentication and authorization technologies play a crucial role in integrating these chatbots with backend systems, ensuring the secure handling of information through APIs and webhooks, and facilitating seamless user access to functionalities.

The user interface of menu-based chatbots is crafted using technologies such as HTML, CSS, and JavaScript for web-based interactions or nativeUI components for mobile applications. This contributes to the creation of an engaging and intuitive interface. Cloud services play a vital rolein ensuring the scalability, reliability, and accessibility of these chatbots, allowing for seamless updates, quick feature releases, and high availability across various devices and locations.

In essence, the introduction of menu-based chatbots highlights the harmonious integration of advanced technologies, defining an innovative landscape that enhances user interactions and contributes to the evolving dynamics of digital communication.

experience. Their functionality is under pinned by a fusion of advanced technologies that seamlessly merge artificial intelligence with user-centric design. These chatbots, driven by Natural Language Processing (NLP), adeptly interpret and respond to user inputs, ensuring a nuanced understanding of intent within the structured confines of a menu. Complemented by Machine Learning algorithms, they continuously refine responses, adapting to evolving user needs. The decision tree structures, rooted in AI, serve as the backbone, guiding users through logical flows within the menu and creatinga user-friendly conversational experience.

Innovative Journal for Opportunities and Development in Science & Technology,
Volume 4, Issue 2, March. 2024
Paper Id: – IJ2023V4I2 -2 A-D
ISSN 2582-6026

Intent recognition technologies enable these chatbots to discern user goals, streamlining the user experience and providing personalized responses aligned with individual intents and preferences. Secure authentication and authorization technologies play a crucial role in integrating these chatbots with backend systems, ensuring the secure handling of information through APIs and webhooks, and facilitating seamless user access to functionalities.

The user interface of menu-based chatbots is crafted using technologies such as HTML, CSS, and JavaScript for web-based interactions or native UI components for mobile applications. This contributes to the creation of an engaging and intuitive interface. Cloud services play a vital rolein ensuring the scalability, reliability, and accessibility of these chatbots, allowing for seamless updates, quick feature releases, and high availability across various devices and locations.

In essence, the introduction of menu-based chatbots highlights the harmonious integration of advanced technologies, defining an innovative landscape that enhances user interactions and contributes to the evolving dynamics of digital communication.

Introduction to Chatbot:

The discipline of creating intelligent devices that can learn how to use information to draw approximations of c onclusions is known as artificial intelligence (AI).It falls into one of two categories:

WeakAI,

which includes stems like Google Assistant that are educated and specialised for a certain purpose.

StrongAI,

which is able to generalise human cognitive capacities and comprises systems smart enough to solve proble ms without the need for human assistance. As a result, these AI systems are capable of handling any kind of task.These days, artificial intelligence (AI) is being used in many different technology fields, including robot s, automation, machine learning (ML), natural language processing (NLP), machine vision, and expert syste ms.AI has also had a significant impact on a variety of facets of daily life, such as health, automobile educati on, business, finance, manufacturing, and law.

Actually, the term artificial intelligence (AI) refers to a large range of subfields, including machine learning (ML) and deep learning (DL).Thus, machine learning (ML) is a subset of artificial intelligence (AI), and it comprise the more sophisticatemodels and methods that enable computers evaluate data and identify patterns. Chatbots are intelligent conversational systems that are able to process human language. A Chatbot can process the user input using the NLP tool, and then associate the input with intent, in order to produce an output. There are two types of Chatbots, which are:

- **Rule-based Chatbots**: They are programmed to reply to specific questions that are predefined at the beginning.In this type of Chatbots ,users are restricted to limited input options.
- **AI Chatbots**: They are programmed to interact with users as a real human, and they have the ability to keep track of context and word dictionary. In addition, this type of Chatbots requires many logic implementations. Moreover, they can be classified into three different categories, which are deep learning Chatbots, end-to-end systems and sequence-to-sequence models.

Innovative Journal for Opportunities and Development in Science & Technology,
Volume 4, Issue 2, March. 2024
Paper Id: – IJ2023V4I2 -2 A-D
ISSN 2582-6026

Literature context:

The intersection o f technical innovation and age-old tradition shas resulted in innovative initiatives within the ever-evolving healthcare sector. This literature review presents a novel approach to the Ayurvedic Prakriti assessment - the Chatbot. It also explores how traditional Ayurvedic principles and contemporary technology can work together, based on the ancient wisdom of Ayurveda which identifies each person's uniqueness according to their doshas - Vata, Pitta, and Kapha

II. PROBLEMSTATEMENT

Ayurveda, an ancient system of personalized healthcare, categorizes individuals into distinct Prakriti types based on the doshas—Vata,Pitta,and Kapha. The conventional method of determining Prakriti involves a time-intensive process, relying on an extensive questionnaire administered by a physician. This traditional approach, while valuable, presents a barrier to widespread accessibility and adoption. Recognizing the need for a more efficient and user-friendly solution, this project introduces "Chatbot,"an AI-driven chatbot designed to revolutionize Ayurvedic Prakriti assessment.The problem revolves around the imperative to streamline and modernize the Prakriti assessment process, making it more convenient for individuals to access personalized health care insights. The traditional approach is often perceived as time-consuming, involving lengthy consultations and exhaustive questionnaires. To bridge this gap, "Chatbot" emerges as a solution, residing on a dedicated website to off an innovative, user-centric, and technologically advanced approach to Ayurvedic constitution determination. The challenge is to create a seamless and efficient self-assessment to all that not only simplifies the Prakriti determination process but also provides users with personalized health recommendations. Furthermore, the platform integrates educational resources on Ayurveda, and

telemedicine consultations, and contributes to a repository of anonymized data for advancements in personalized medicine.

In essence,the problem centers on making Ayurvedic insights more accessible and adapting them to the modern healthcare landscape. By leveraging the capabilities of artificial intelligence, "Chatbot" aims to empower individuals to understand their unique constitution,for stering a harmoniousblend of ancient wisdom and contemporary technology in the pursuit of holistic well-being.The project seeks to overcome the challenges posed by the traditional method, ensuring that the Ayurvedic Prakriti assessment become aconvenient, informative,andpersonalized experience for a broader audience.

III. REVIEW OF CHATBOT DESIGN AND IMPLEMENTATION

To improve the development of chatbots, a selection of studies that have been accomplished in the last five years are examined and discussed below.The papers' goals, approaches, advantages, and conclusions are all stated and examined in detail.Other crucial factors that must be taken into account follow next, such as the o bstacles that must be conquered and the extent of additional research that need be done. Neural machine translation (NMT) is a technique form aching translation, which uses neural network models for learning a statistical model for machine translation. NMT model is based on Sequence-to-Sequence **(Seq2Seq) Model**

Innovative Journal for Opportunities and Development in Science & Technology,
Volume 4, Issue 2, March. 2024
Paper Id: – IJ2023V4I2 -2 A-D
ISSN 2582-6026

using an architecture of encoder-decoder.

In order to maximise translation performance, Bahdanauetal. (2015) conducted research with the goal of de veloping a Neural Machine Translation (NMT) from English to French. This was accomplished by construct ing a single neural network that is jointly learning to align and translate.Unlike earlier methods, such statisti cal machine translation and the basic encoderdecoder approach, which required meticulous setup and verific ation of each module in the translation pipeline, this NMT may be trained directly on both the source and tar get texts.

Encoder: Encodes the source sentence into a sequence of vectors.

Decoder: Defining a probability over the translation and decodes the target sentence.

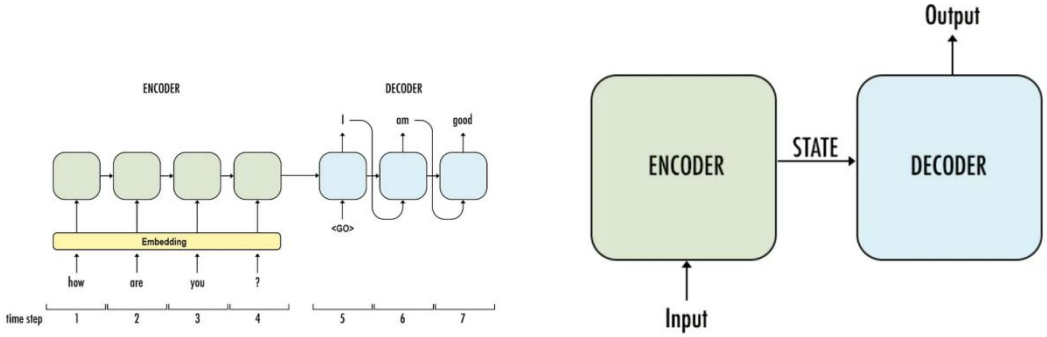

Fig.1- Block diag. of chtbot

The Bahdanauetal approach has several advantages, such as the ability to handle long sentences, the provisi on of both qualitative and quantitative results in the paper, the model architecture and training process as ap pendices, and the use of the BiRNN model to improve the annotation of each word by enabling it to contain the summaries of both the preceding and following words.

However, because only sentences with known terms are taken into account during translation, the suggested NMT models do not have a table to handle uncommon or unknown words, which presents Furthermore, N MT frequently generates output that is too narrowminded and disregards the direction of subsequent discuss ions. The authors were dissatisfied by this NMT's two primary weaknesses, which are: The generic responses (e.g .Ok,I do not know).

The inconsistent responses (such as posing the same query twice with varying responses).

To increase the efficiency of the RNN encode model, this NMT model can be improved by utilising designs like a hybrid of an RNN orade-convolutional neural network.

In order to match questions and answers by taking into account the encoding semantic, Yuetal. presented a n ovel strategy called Answer Sentence Selection (ASS), which is based on the application of distributional se ntence models. When ASS is asked a question, it selects the right response from a list of possible sentences. With this method, the issue of earlier models' difficulty adjusting to new domains—such as feature-based semantic models is resolved.In contrast to earlier methods, the suggested model by Yuetal.Generally, in the question-answering process, answers are retrieved by converting the question into a database of queries and then apply this query subsequently to the current knowledge base. Likewise, this ASS model (approach) projects Questions and Answers(QA)into vectors and then learn as semantic matching function between QA pairs to combine this function with a simple sub sequently. In other words, it chooses a sentence thatincluded the information needed for answering the given question from a group of candidates

Innovative Journal for Opportunities and Development in Science & Technology,
Volume 4, Issue 2, March. 2024
Paper Id: – IJ2023V4I2 -2 A-D
ISSN 2582-6026

that derived by using an information extraction system. **ASS uses two models** to project sentences into vector space representation, which are **Bag-of-words model** and **Biagram model**. Moreover, the proposed model uses only two non-distributional features, word matching weighted by IDF values and question-answer pair word matching, which helps to make the approachs ampler than previousones. By using the proposed model,ASS is able to capture complex semantics of a sentence compared with the previous approaches, since the Biagram model is based on a **Convolutional Neural Network (CNN).** CNN-based models have been shown its effectiveness in some applications such as twitter sentiment prediction, semantic role labelling, and semantic parsing. Figure 1 the architecture of the CNN-based sentence model in one dimension.

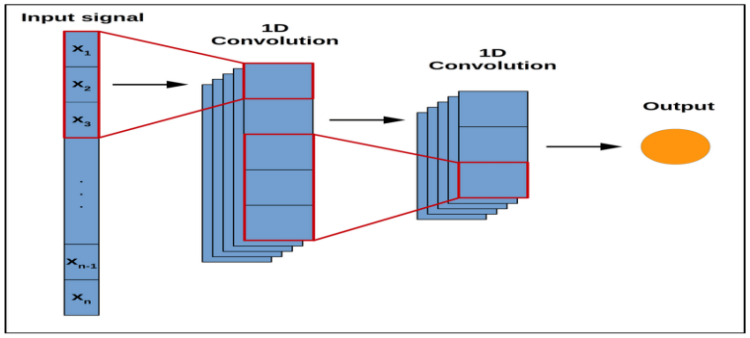

Figure 2: The architecture of the CNN-based sentence model in one dimension.

The biagrams used by Yuetal. in this approach are with one convolutional layer, and Fig.2 shows the architecture of the CNN-based sentence model in one dimension. Using this composition model was a great choice because it made the proposed model sensitive toword order. Equally important,this composition model enabled the proposed approach to learn the internal syntactic structure of sentences; therefore, it is capable ofcapturinglong-rangedependencies.Anumberofexperiments were conducted on the ASS dataset, which is created **from the TRECQ Atrack**, and the results show the effectiveness of the proposed model that matching the state-of-the-art results.

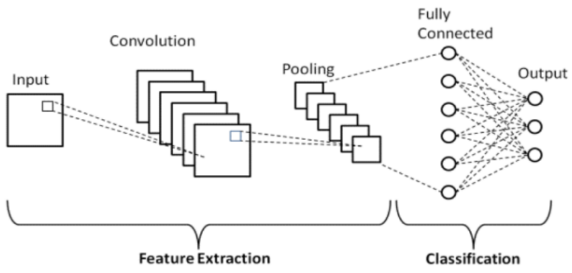

Figure 3: The architecture of the CNN

As aresult, the ASS proposed model achieved good performance and matched the state of the art performanceon the task of selecting the answer sentence. Moreover, it emphasizes that **a Neural Network-based sentence model** can be applied to the task of **Answer Sentence Selection**. Moreover, the ASS model can

Innovative Journal for Opportunities and Development in Science & Technology,
Volume 4, Issue 2, March. 2024
Paper Id: – IJ2023V4I2 -2 A-D
ISSN 2582-6026

be applied across any language directly,since it does not depend on any external resources.

Table 1: Acomparison between RNNandCNN.

RNN	CNN
Words are exchanged in the dialogue (which can have any input and output durations).	There is a limit to the conversatis s ize (it cannot handle sequential dat a).
Takes into account both the present inp ut and the inputs that were previously r eceived.The RNN model's STM cells e nable the RNN to retain prior inputs.	Doesn't remember the prior input; i t just takes into account the current input.
Since it makes use of time-series data, this model works best wit h systems that take the context of con versations into account.	Utilises the pattern of connectivity amon g its neurons; as a result, the arrangemen t of the neurons allows CNN to react to a reas of overlap that remain the visual fiel d
Used to create a combination of subcomponents (e.g.text generation, language translation)	Used to separate a picture or other com ponent into smaller parts, such as an ite m within an image.
It is perfect for increasing speech production.	It is perfect for processing photos, movies , and sorting potential texts.

One of the most effective Chatbots that are developed in the past three years is **Super Agent Chatbot**, a customer service Chatbot for E-commerce websites, which is developed by **Cuietal.**

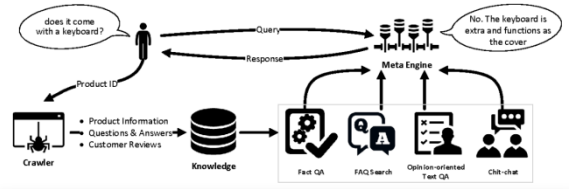

Figure 4: Super Agent Chatbot

Innovative Journal for Opportunities and Development in Science & Technology,
Volume 4, Issue 2, March. 2024
Paper Id: – IJ2023V4I2 -2 A-D
ISSN 2582-6026

The collected data comes from large-scale data available in e-commerce websites that area appropriated of editor the chat engine. The chat engine is decomposed into **five sub-engines** "See Fig.7"

1. **Fact Questions & Answers(QA)**

1.Product Information(PI):

It is intended to respond to inquiries about the specifics of the goods.The DSSMmodel, a deep learning-based matching framework, has been used for this.

Every attribute name is matched with the input question, and the most matched attribute name that meets a pred etermined threshold is chosen.

Next, using a collection of predetermined templates, this attribute is used to produce the answer sentence.[4]

2.FAQsearch engine for QA:

It is designed to answer frequently asked questions by finding the most similar question in QA pairs from given a set of QA pairs and a customer's

question,the entire turns the corresponding answer as the reply. This has been achieved by training a Regression Forest model and using some features like DSSM Model, Glove, and word mover's distance.

Opinion-oriented text QA for Customer Reviews (CR):

It is designed to answer questions based on the customers' review. This has been done using the following approaches:

A hybrid approach for extracting the aspects from review sentences.

A sentiment classifier (Tang et al., 2014) for determining the polarity of the sentence regarding the mentioned aspect.

A Lucene toolkit for indexing the aspects and polarity to gather with keywords and retrieving the top twenty candidate sentences, as well as a regression model that ranks each candidate phrase according to a range of char acteristics with varying degrees of detail.Two CNNbased models and a Translation model (Bahdanau etal.2015) are among these features.Chitchat Engine to respond to salutations:

Its purpose is to facilitate the smoothest possible discourse and respond to questions that the preceding three en gines were unable to address.

Based on the NMT model (Bahdanau et al., 2015), this model was trained using data from Twitter conversation Chit chat engines typically stray from the issue at hand, but Cuietal prevented this by predefining a set of accept able responses in advance of sending an email (Kannanetal., 2016).

Meta Engine for merge and prioritize the results from the different engines.

The Cuietal. (Super Agent) Chatbot has many strengthens, which are:

- It can easily leverage large-scale data, as well as crowd-sourcing styles and publicly a available e-commerce data.
- It has a set of state-of-the-art **Natural Language Processing (NLP)** and machine learning techniques, which are used in the Chabot's sub-engines.
- It does not need to deploy web crawlers for the websites since it is associated with each product webpage as an add-on extension. As a result, it directly improves the customer's online.

ISSN 2582-6026

1. **Front-end**, which uses NLP and AI to determine the user's intent and provide sa reply to the user's intent. To sum up,it is responsible for communicating with the user.
2. **Back-end**, which is responsible for creating the knowledge base and consuming the domain' scorpus.
3. **Knowledge base**, which represents the knowledge of the Chatbot in a for matthatis consumable by the front-end.In addition, the domain corpuses classified and tagged in the knowledgebase.
4. **Corpus**, which represents the domain. It can be structured or unstructured. The OMSCS's corpusis based on FAQ's.

IV. RELATEDWORK

Conventional challenges in determining Prakriti have prompted the development of Ayusoft software by CDAC . This software employs a computer- assisted questionnaire for Prakriti assessment; however, its effectiveness necessitates validation through widespread availability in Ayurvedic hospitals and research institutes.

Recognizing the limitations in existing methods, a prototype Prakriti analysis tool (PPAT) has been introduced for rapid and reliable Prakriti diagnosis. The primary objective of PPAT is to identify specific guna components of dosha dominance, aligning seamlessly with the spirit of Prakriti examination outlined in Charaka Samhita.

V. APPLICATIONS OR PRACTICAL

IMPLICATIONS

Access to personalized health advice based on their Prakruti assessment.

- Traditional Medicine Integration:

Bridging the gap between traditional Ayurvedic insights and modern healthcare by making Ayurvedicknowledge and practices accessible to a wider audience. The integration involves presenting Ayurvedic principles in a format that aligns with contemporary healthcare practices. This approach ensures that the benefits of Ayurveda are communicated effectively to a diverse audience, promoting a harmonious blend of traditional wisdom and modern health solutions.

- Wellness and Lifestyle Coaching:

The platform offers wellness and lifestyle coaching services, assisting users in making sustainable, constitution-specific changes to their daily routines.

VI. CONCLUSION

In conclusion, the Chatbot project represents a pioneering fusion of traditional Ayurvedic knowledge and contemporary technologies, addressing the limitations of conventional Prakriti assessments. By introducing an AI-driven chatbot on aspecialized platform, Chatbot streamlines and democratizes personalized healthcare. Beyond expedited Prakriti determination, Chatbot offers individualized health advice, Ayurvedic education

ISSN 2582-6026

REFERENCE

[1] Q. N. Nguyen, A. Sidorova, R. Torres, "User interactions with chatbot interfaces vs. Menu- based interfaces: An empirical study,"ComputersinHumanBehavior,vol.128,pp.107093,2022.

[2] H. Mondal, C. Baidya, S. Mondal, S. Mondal, "Validity andreliability of adapted Bengali version of self-assessment questionnaire to assess Prakriti." Int. J. Ayurvedic Med., vol. 13, no. 4, pp. 1017-1022, 2022.

[3] S. Rastogi, "Development and validation of a Prototype Prakriti Analysis Tool (PPAT): Inferences from a pilot study," Ayu,
pp.209-218,Apr.2012.doi:10.4103/0974-8520.105240. PMID: 23559792; PMCID: PMC3611641.

[4] Z. Huang et al., "An Aurgenomics Approach: Prakriti- Based Drug Discovery and Development for Personalized Care," Front. Pharmacol., vol. 13, p. 866827, Apr. 2022.

[5] R.H.Ravaletal.,"Determinants of prakriti, the human constitution types of Indian traditional medicine and its correlation with contemporary science," J Ayurveda IntegrMed.,vol. 5, no. 3, pp. 167-175, Jul. 2014.

[6] M. T. Edwards and D. L. Streiner, "Development of a reliable Dosha self- assessment questionnaire,"inEXPLORE,vol.18,no.5,pp.573- 578, 2022, doi: 10.1016/j.explore.2021.09.003.

[7] S. Majumder et al., "On Intelligent Prakriti Assessment in Ayurveda: a Comparative Study,"pp. 9827