Plant Genesis

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Abstract In a world where innovation is the driving force behind progress, it is crucial to protect the fruits of intellectual labour. However, the lack of awareness surrounding Plant Patents and the complexities of the patenting process often hinder individuals from safeguarding their botanical innovations. To bridge this knowledge gap, we have embarked on a mission to develop a comprehensive and user-friendly website, serving as a beacon for those navigating the intricate landscape of plant patent registration.

Keyword ; language - translation technology - Sign Language - gesture detection systems - Convolutional Neural Network (CNN) - American Sign Language - Text to Speech .

INTRODUCTION

In the empathy phase of design thinking, individuals immerse themselves in the user's world, actively seeking to comprehend their needs, challenges, and aspirations. Through careful observation and attentive listening, this phase establishes a profound connection with the user's viewpoint, offering crucial insights that shape the development of solutions focused on the user's experience.

In the pursuit of implementing plant genesis, this thesis serves as a guiding light, emphasizing the paramount importance of inclusivity. It goes beyond the traditional boundaries of intellectual property protection, recognizing that innovation is not the exclusive domain of the educated elite. By championing inclusivity, the research underscores the notion that even among uneducated individuals, unique ideas deserve protection from theft and exploitation. The concept of plant genesis, therefore, becomes a vehicle for democratizing innovation, breaking down barriers that may hinder the recognition and safeguarding of inventive ideas.

Central to the thesis is a profound commitment to acknowledging and upholding the inherent rights of every individual to their own inventions. In doing so, the research seeks to bridge existing gaps in understanding, especially among those with limited formal education. By dismantling the notion that innovation is reserved for the academically

trained, the thesis advocates for a more egalitarian approach to intellectual property. It the need to empower all contributors to innovation, irrespective of their educational backgrounds. This inclusive perspective not only broadens the scope of those who can actively participate in the creation of novel ideas but also underscores the belief that intellectual creativity is a universal right. Through the lens of empathy, the thesis envisions the cultivation of an environment where intellectual creativity is not only valued but also safeguarded for the benefit of all. It recognizes that true progress is achieved when diverse perspectives and ideas, regardless of educational pedigree, are embraced and protected. By promoting an empathetic understanding of the challenges faced by those with limited education in navigating the complexities of intellectual property, the research aims to foster a more inclusive and supportive atmosphere. In doing so, it aspires to contribute to a paradigm shift where every individual, regardless of their educational background, can actively engage in the innovation process, knowing that their contributions are not only recognized but also protected for the greater good.

One of the cornerstones of this research lies in the belief that people can easily comprehend the intricacies of the patenting procedure. The thesis aims to break down the often-perceived complexity of patent processes, making them accessible to individuals from all walks of life. By

adopting a clear and straightforward approach to explaining the steps involved in obtaining a patent, the research endeavors to demystify the procedure. Through user-friendly language and easily digestible information, the thesis seeks to empower individuals, ensuring that the patenting process is not an exclusive realm reserved for legal experts but a journey that can be navigated by anyone with a creative idea.

In line with the inclusive philosophy, the thesis adopts a user-centric approach to patent education. Recognizing that accessibility is not just about language but also about presentation and engagement, the research incorporates interactive elements and real-world examples. Through this approach, the complexities of patent procedures are transformed into comprehensible steps, fostering a tense of confidence among aspiring innovators. By embracing the principle that understanding the patenting process should be within reach for everyone, the thesis contributes to the broader goal of building a society where intellectual property protection is not only seen as achievable but as a fundamental right for all.

A fundamental tenet of this research is the deliberate avoidance of convoluted language and complex jargon in explaining patent procedures. The thesis recognizes that simplicity is key to fostering widespread understanding, and, as such, it deliberately refrains from employing difficult options that might pose barriers to comprehension. By adopting clear and straightforward language, the research aims to demystify the patenting process, ensuring that individuals, regardless of their background, can easily grasp the steps involved. This commitment to simplicity is driven by the belief that accessibility should not be hindered by unnecessary complications, allowing a broader audience to engage with and navigate the patenting journey with confidence. The user-centric approach of this thesis extends beyond language clarity to encompass a broader strategy of user-friendly education. The research integrates interactive elements, real-world examples, and intuitive explanations, ensuring that the patenting process is not only comprehensible but engaging. By consciously avoiding difficult options that might obscure understanding, the thesis empowers individuals to participate actively in the learning process. In embracing the principle that understanding patent procedures should not be an arduous task, the research contributes to building a more inclusive and informed society, where the protection of intellectual property is demystified and accessible to all.

The imperative to avoid spam calls, messages, and emails has become increasingly pronounced in our digitally interconnected world. This challenge necessitates the adoption of robust strategies aimed at preventing unwanted and potentially harmful communication. Cutting-edge technologies, such as advanced spam filters and call screening applications, play a crucial role in identifying and blocking spam attempts. Additionally, user education on recognizing phishing attempts and suspicious communication is an integral component of an effective spam prevention strategy. By combining technological solutions with user awareness, individuals can proactively shield themselves from the inconvenience and potential risks associated with spam across various communication channels.

In the quest to avoid spam, empowering users with the tools and knowledge to protect themselves is paramount. Users should be equipped with user-friendly and efficient spam blocking applications that seamlessly integrate with their communication devices. Moreover, educational campaigns that raise awareness about the tactics employed by spammers can help individuals identify and avoid falling victim to fraudulent communication. By fostering a collective sense of vigilance and providing accessible resources, the community at large can actively participate in the fight against spam. Ultimately, a multi-faceted approach that combines technological solutions with user empowerment is key to mitigating the pervasive issue of spam across calls, messages, and emails, ensuring a safer and more secure digital communication environment for everyone.

The imperative to steer clear of spam calls, messages, and emails calls for the development of strategies that resonate with everyday users seeking simplicity and clarity. In navigating the digital landscape, the focus is on adopting intuitive and user friendly solutions. Advanced spam filters, seamlessly integrated into communication platforms, serve as a shield against unwanted intrusions. Simultaneously, user education becomes a pivotal aspect, with efforts aimed at enhancing awareness on recognizing phishing attempts and suspicious communication. By steering clear of complicated options and embracing straightforward tools, individuals can effortlessly protect themselves from the nuisance and potential risks associated with spam across diverse communication channels. In the pursuit of a spam-free digital experience, empowerment lies at the core of user-centric strategies. The emphasis shifts towards providing users with intuitive spam-blocking applications that align seamlessly with their communication devices. Additionally, educational initiatives play a pivotal role, ensuring users are well-versed in identifying common tactics employed by spammers.

By simplifying the tools and knowledge needed to combat spam, a collective effort emerges, empowering individuals to actively participate in fortifying their digital space. Striking a balance between accessible technological solutions and user empowerment is crucial, fostering a secure and user-friendly digital environment where people can navigate their communication channels without the

intrusion of unwanted and potentially harmful spam. In the pursuit of a spam-free digital experience, empowerment lies at the core of user centric strategies. The emphasis shifts towards providing users with intuitive spam blocking applications that align seamlessly with their communication devices. Additionally, educational initiatives play a pivotal role, ensuring users are well-versed in identifying common tactics employed by spammers. By simplifying the tools and

knowledge needed to combat spam, a collective effort emerges, empowering individuals to actively participate in fortifying their digital space. Striking a balance between accessible technological solutions and user empowerment is crucial, fostering a secure and user-friendly digital environment where people can navigate their communication channels without the intrusion of unwanted and potentially harmful spam. As technology evolves, ongoing efforts to enhance user awareness and simplify spam-fighting tools will contribute to a collective defense against digital intrusions, creating a more secure and enjoyable online experience for all

II EXISITNG SYSTEM

For this we have come with a solution to address the lack of awareness about Plant Patents and patenting processes by developing an informative website. The website serves as a comprehensive guide, offering users accessible information on diverse registration methods. By consolidating relevant details in one user-friendly platform, the website aims to alleviate the stress associated with the patenting process, empowering individuals to navigate and understand the intricacies of plant patent registration more efficiently. The objective is to facilitate the patenting process for innovators by providing comprehensive guidance through our dedicated website. By offering clear and accessible paths, the platform aims to empower individuals to successfully navigate the intricacies of patenting, ensuring that their innovations and inventions receive the necessary protection. The goal is to enhance accessibility and streamline the patent application journey, fostering a more innovation-friendly environment. One significant limitation within the current system is the lack of comprehensive information and elaboration specifically pertaining to plant patents. The existing framework fails to provide a detailed understanding of the nuances associated with securing patent protection for plant varieties. This deficiency hinders individuals, particularly in the context of agriculture and horticulture, from navigating the patenting process effectively. The absence of in-depth insights into plant patents may discourage potential innovators from pursuing this avenue for safeguarding their botanical creations.

Furthermore, the prevailing lack of awareness regarding patent processes, particularly in the Indian context,

represents a noteworthy drawback. Many individuals in India remain uninformed about the intricacies of the patent system, and there is a prevailing misconception that the patenting process is arduous, exclusive, and beyond the reach of the general populace. This misconception could potentially deter innovative minds from seeking protection for their creations, limiting the growth of intellectual property within the country. Addressing these limitations is crucial for fostering a more informed and inclusive environment, where individuals in India can confidently engage in the patenting process and contribute to the protection of their valuable innovations. Furthermore, the prevailing lack of awareness regarding patent processes, particularly in the Indian context, represents a noteworthy drawback. Many individuals in India remain uninformed about the intricacies of the patent system, and there is a prevailing misconception that the patenting process is arduous, exclusive, and beyond the reach of the general populace. This misconception could potentially deter innovative minds from seeking protection for their creations, limiting the growth of intellectual property within

the country. Addressing these limitations is crucial for fostering a more informed and inclusive environment, where individuals in India can confidently engage in the patenting

process and contribute to the protection of their valuable innovations. Initiatives focused on education and accessibility are essential to demystify the patenting process and encourage a broader participation in securing intellectual property rights, particularly in the field of plant varieties.

III. PROPOSED SYSTEM

In the realm of technological innovation, our project emerges as a pioneering endeavor to develop a dynamic and accessible platform utilizing HTML coding. The primary objective is to create an informative website addressing the gaps in understanding and awareness surrounding plant patents and patent processes. Leveraging the versatility and

user-friendly nature of HTML, our project aims to demystify the intricacies of plant patents, making information easily accessible to a diverse audience. The project is envisioned to be built on HTML, a foundational web development language known for its simplicity and widespread compatibility. HTML's structure allows for seamless integration of various content elements, ensuring that the website is not only visually appealing but also easily navigable. This choice aligns with our commitment to inclusivity, as HTML provides a platform that can be accessed across different devices and browsers, reaching a broad audience interested in plant patent education.

To enhance the project's reach, we plan to host the website on a web server, ensuring its availability through a

designated domain. This step is crucial in making the information universally accessible, allowing users to reach the platform conveniently through standard web browsers. By securing a domain, we aim to establish a distinct online presence, facilitating easy access for individuals seeking guidance on plant patents. This strategic approach aligns with our vision to bridge the existing awareness gap and make valuable information on plant patents readily available to a global audience.

The overarching goal of our project is to democratize information on plant patents, dispelling the perception that the patenting process is complex and exclusive. Through a

user-friendly interface developed with HTML, coupled with robust web hosting and domain accessibility, we aspire to create a digital space where individuals, irrespective of their technical expertise, can navigate seamlessly. This ideation sets the stage for an innovative project that not only leverages technology but also strives to empower individuals to explore the world of plant patents confidently. Our user-centric approach involves crafting an intuitive website that serves as a comprehensive resource on plant patents. By employing HTML, we ensure a responsive

and accessible platform that facilitates easy comprehension of the patenting process. The integration of robust web hosting guarantees reliable access to the information, promoting inclusivity and encouraging users from diverse backgrounds to engage with the content. This project extends beyond technological development; it is a commitment to breaking down barriers and fostering a community where knowledge on plant patents is readily available and easily understandable, ultimately contributing to a more inclusive and informed intellectual property landscape.

V METHODOLOGY

The website is built using the Google Apps Script web app that uses HTML and CSS for the front end. The web app allows users to submit information through a form, and the submitted data is then appended to a Google Sheets spreadsheet.
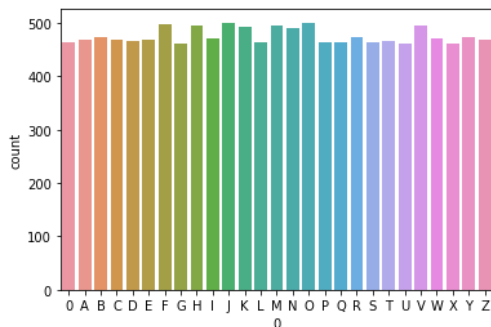

Fig 2. Training Data statistics

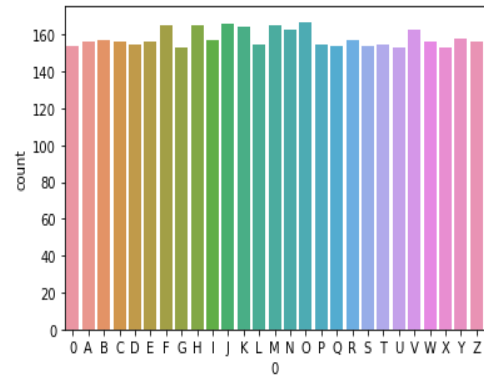- Testing Set: 4368 images

Fig.3. Testing Data statistics

Gaussian filter is used as a pre-processing technique to make the image smooth and eliminate all the irrelevant noise. Intensity is analyzed and non-maximum suppression is implemented to remove false edges. For a better pre-processed image data, double thresholding is implemented to consider only the strong edges in the images. All the weak edges are finally removed and only the strong edges are considered for the further phases.
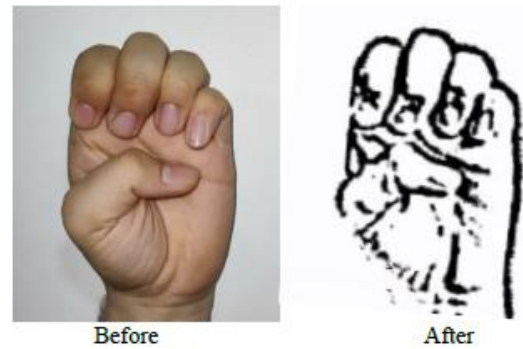

Fig.4. Gaussian filter image of hand

The provided image depicts a pre-processed image with discerned features that is subsequently forwarded to the model for the purpose of classification. The proposed work aims at converting such sign gestures into speech that can be understood by normal people. The entire model pipeline is developed by CNN architecture for the classification of 26 alphabets and one extra alphabet for null character.

1. Convolutional and Pooling Layers:

• The first layer is a convolutional layer with 32 filters (kernels) of size (3, 3) and ReLU (Rectified Linear Unit) activation. The input shape is (sz, sz, 1), where sz represents the size of the input images, and 1 indicates a single channel (grayscale).

• After the convolutional layer, a max-pooling layer is added with a pool size of (2, 2) to reduce the spatial dimensions.

• The second convolutional layer has 32 filters of size (3, 3) and ReLU activation. The input shape is automatically inferred from the previous layer's output.

• Another max-pooling layer follows.

2. Flattening:

• The Flatten layer is added to transform the 2D output of the convolutional layers into a 1D array, which can be fed into the fully connected layers.

3. Fully Connected Layers:

• Three fully connected (dense) layers follow the flattening layer.

• The first dense layer has 128 units with ReLU activation.

• A dropout layer with a dropout rate of 0.40 is added to reduce overfitting.

• The second dense layer has 96 units with ReLU activation, followed by another dropout layer.

• The third dense layer has 64 units with ReLU activation.

• The final dense layer has 27 units (assuming 27 classes for the classification task) with softmax activation, which is suitable for multi-class classification.

4. Compiling the Model:

• The model is compiled using the Adam optimizer, categorical crossentropy loss (common for multi-class classification), and accuracy as the evaluation metric.

5. Summary:

• The classifier. Summary () method is called to display a summary of the model architecture, including the layers, output shapes, and the number of parameters.

Layer (type)	Output Shape	Param #
conv2d_3 (Conv2D)	(None, 126, 126, 32)	320
max_pooling2d_3 (MaxPooling2	(None, 63, 63, 32)	0
conv2d_4 (Conv2D)	(None, 61, 61, 32)	9248
max_pooling2d_4 (MaxPooling2	(None, 30, 30, 32)	0
flatten_2 (Flatten)	(None, 28800)	0
dense_5 (Dense)	(None, 128)	3686528
dropout_3 (Dropout)	(None, 128)	0
dense_6 (Dense)	(None, 96)	12384
dropout_4 (Dropout)	(None, 96)	0
dense_7 (Dense)	(None, 64)	6208
dense_8 (Dense)	(None, 27)	1755

Total params: 3,716,443
Trainable params: 3,716,443
Non-trainable params: 0

Fig.5. CNN Model creation

VII RESULTS AND DISCUSSION

Testing and deploying the provided code involves several steps, including ensuring the functionality works as expected, handling permissions for Google Apps Script, and deploying the web application. Below are the steps you can follow for testing and deployment:

Testing:

1. Google Apps Script Testing:

- Open the Google Apps Script project associated with the code.

- Use the Apps Script editor to run the `do Get` and `user Clicked` functions manually to

ensure there are no syntax errors.

2. Web Page Testing:

- Open the HTML file in a web browser and manually test the functionality.

- Verify that navigation between sections (`Features`, `About`, `Patent`, `Process`,

`Contact`) works as expected.

- Check that the form submission (`Send Message`) sends data to the Google Sheet.

3. Google Sheet Testing:

- Make sure the Google Sheet specified in the `user Clicked` function exists.

- Verify that new form submissions are correctly appended to the specified sheet.

Deployment:

1. Deploying the Google Apps Script:

- In the Apps Script editor, go to the "Publish" menu and select "Deploy as web app."

- Choose a version (usually, you'll select "New" for a new deployment).

- Set the access permissions (who can access the app). For testing, you might choose "Anyone, even anonymous," but for production, you may want to restrict access. - Click "Deploy" and follow the prompts to review permissions and complete the deployment.

2. Authorization:

- After deploying the web app, you may need to authorize the script to access Google Sheets and other services. Follow the authorization prompts that appear.

3. Accessing the Web App:

- Once deployed, you will be provided with a URL for the web app. Open this URL in a web browser.

- Verify that the web app works as expected. If there are any issues, check the browser console for errors.

4. Adjusting Permissions:

- If you initially allowed "Anyone, even anonymous" to access the app during testing, you might want to adjust permissions for production. Consider limiting access to specific users or domains.

5. SSL Enforcement:

- If your deployment is sensitive and involves user data, consider enforcing HTTPS for increased security. You can do this in the "Deploy as web app" dialog.

6. Monitoring:

- Implement logging or monitoring within the Google Apps Script to track usage, errors, and other relevant information.

7. Updates:

- If you make changes to the code, redeploy the web app with a new version. Users will need to reauthorize the updated script.

Fig.6. Screenshot test 1
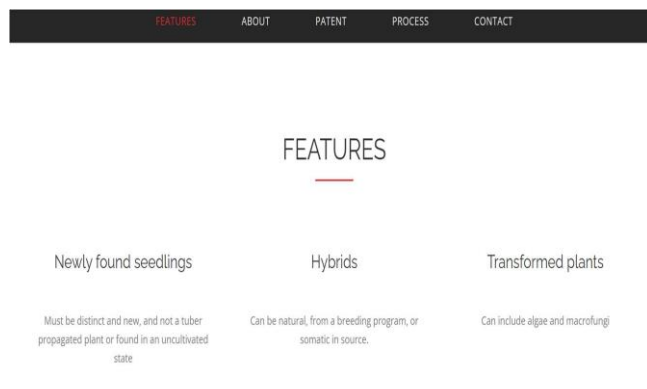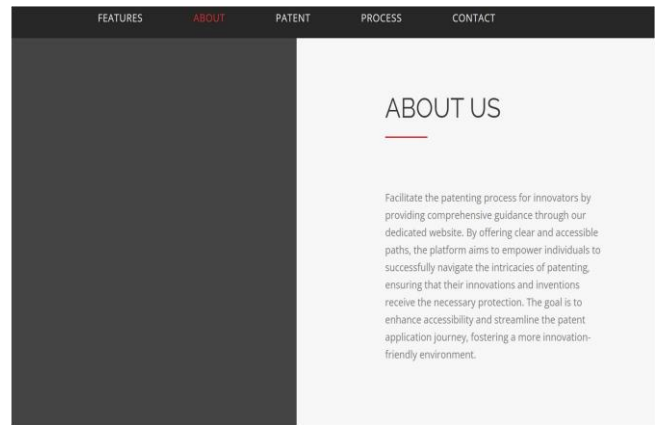

Fig.7. Screenshot test 2
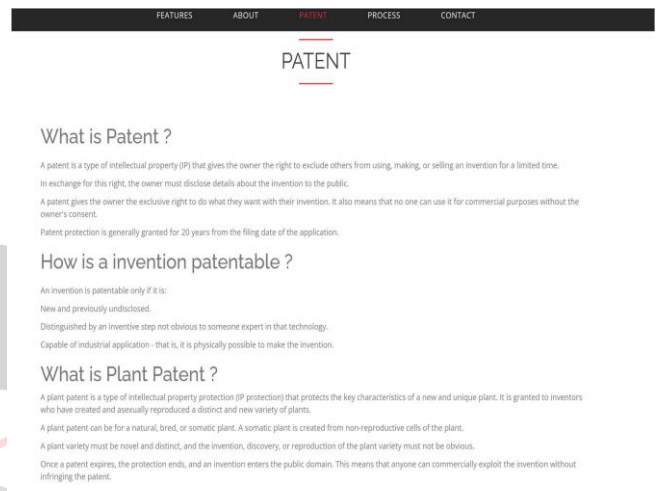

Fig.7. Screenshot test 2
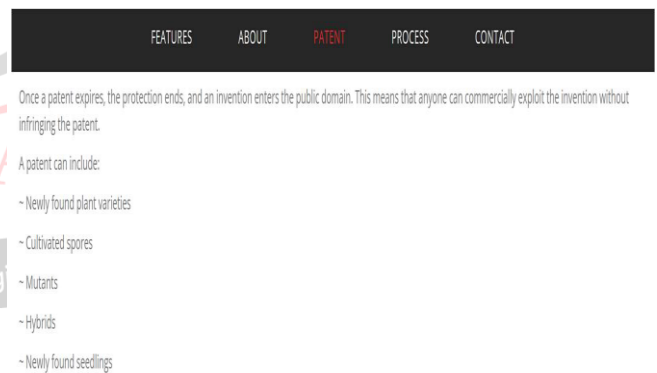

Fig.7. Screenshot test 2

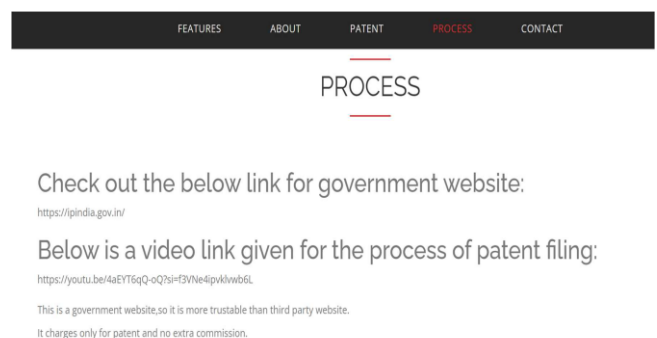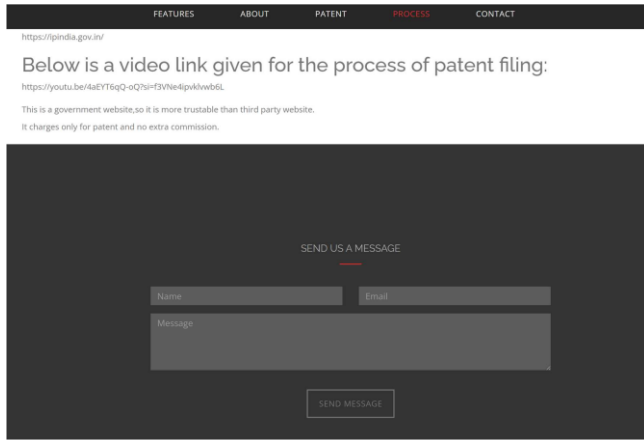Fig.8 Screen shot (Real-Time Detection code)

Fig.7. Screenshot test 2
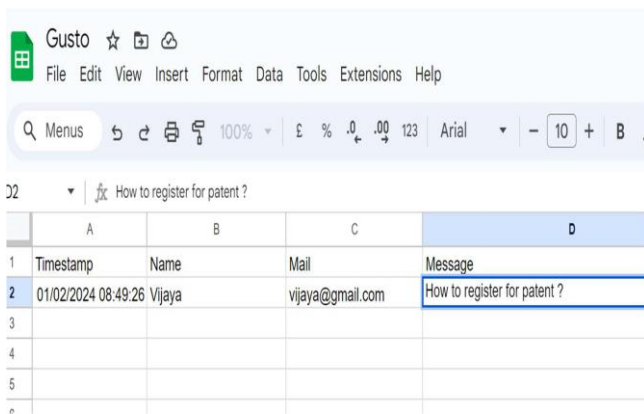
Fig.7. Screenshot test 2

Fig.7. Screenshot test 2

VIII CONCLUSION

The sign language interpretation project presents a contemporary and cost-effective solution utilizing machine learning for real-time recognition of sign language gestures. By harnessing the power of deep learning and computer vision, our model showcases a remarkable accuracy of 99.8% in detecting and interpreting sign language gestures, offering a swift and reliable means of communication for individuals with hearing impairments. This project significantly reduces the time traditionally spent on manual interpretation, making it a valuable tool for communication accessibility. Moreover, the seamless integration of the model into a Jupyter-based Python environment and the swift evaluation on both validation and test sets underscore its practicality. The success of our project lies in its ability to bridge the communication gap and provide an efficient, real-time solution for sign language interpretation.

Future Directions

Expanding the model's vocabulary to encompass a wider range of sign language gestures, accommodating regional variations and specialized signs. Additionally, advancing the model to handle multiple individuals simultaneously in group settings and introducing dynamic gesture interpretation for continuous sign language expressions would enhance its practical utility. Ensuring adaptability to diverse environments and lighting conditions is essential, along with integrating an interactive feedback mechanism for users to correct and refine the model's interpretations. The inclusion of real-time translation into written or spoken language, as well as exploring integration with smart devices, would further extend the project's accessibility and usability.

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