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Department of Information Technology
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ITA01: Tagmemic- A Linguistic Unit

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1.Abstract

In the current scenario, there are different apps, websites, etc. to carry out different functionalities with respect to text such as grammar correction, translation of text, extraction of text from image or videos, etc. There is no app or a website where a user can get all these functions/features at one place and hence the user is forced to install different apps or visit different websites to carryout those functions. The proposed system identifies this problem andtries to overcome it by providing various text-based features at one place, so that the user will not have to hop from app to app or website to website to carry out various functions. The proposed system will provide users with various functions such as grammar checking, text extraction from an image, text summarization, translation of text into different languages, etc. which will help them in their daily life.

2. Introduction/Theory

Every individual today leads a fast life. Even if the most common tasks are made convenient, it contributes largely to saving one's time, money and energy. Right from corporate staff and businessmen to students and senior citizens everybody is bound to use text related applications. Most commonly people have to write different types of documents and face the problem of correct use of English grammar. Reading long lines of articles might be stressful and time-consuming. Similarly, not being able to understand a document due to the language barrier may lead to a delay in work. Also, being able to use the text in an image for any of the above purposes is not possible under a single frame. Hence, this system identifies the above problems and provides a solution in an all in one web-page. With the help of this system, one can easily navigate through different functionalities as per their use. The system is largely divided into four modules. The first one deals with extraction of text from an image which provides the functionality of obtaining the text within any image. The second module helps in summarization of any article to desired number of lines as per user input. Further, the third module deals with translation of English text to Spanish, German, Hindi and French as these are the most widely used languages around the world. Finally, the fourth module helps the user in correcting the grammatical errors within a sentence.

3.Problem Statement

Simple tasks like reading a hoarding may be a stressful one if written in a different language. One has to note down the entire text written in the hoarding and then translate it via a different application. This might be time-consuming and not feasible in every instance. Further, various documents demand different styles of writing and the use of correct grammar is one of the major problems while doing this. This does not let the user work according to their comfort which leads in delay and inefficiency. Also, reading long lines of articles may not be feasible in many instances due to time constraints. These different modules are the most basic and useful functionalities one uses in their day to day life and hence it is important to identify them. This system has been developed by considering all the above problems and understanding the user's need and purpose.

4. Proposed System & Implementation Flow Chart

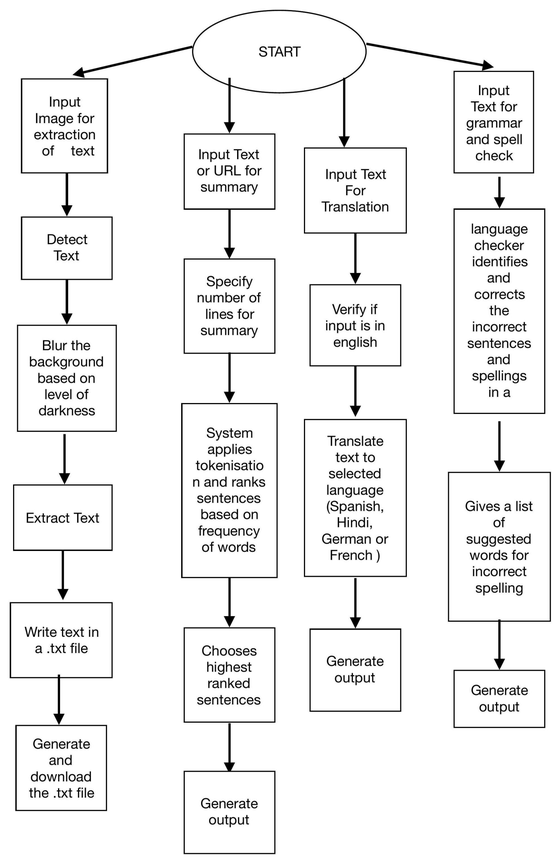

Fig.1 System Flowchart

- For the first module, the the image is first loaded into the system.The text in the image is detected and pre-processing techniques are applied where blurring is applied based on the darkness of the image input. Thus the text is extracted and written in a.txt file for output generation and is available to download.
- For the second module, the user first enters the text or url for summary. After specifying number of lines, the sentences are tokenized and the highest frequency words are ranked accordingly and chosen for the output.
- For the third module, once the user enters the text, it is verified whether the input is in English.By Python's translator library, the text is converted to Spanish, Hindi, French or German.
- For the final module, the language checker checks for the grammatical errors in a sentence.It provides a list of suggestions for the incorrect spelling entered and generates the output.

5. Result and discussion

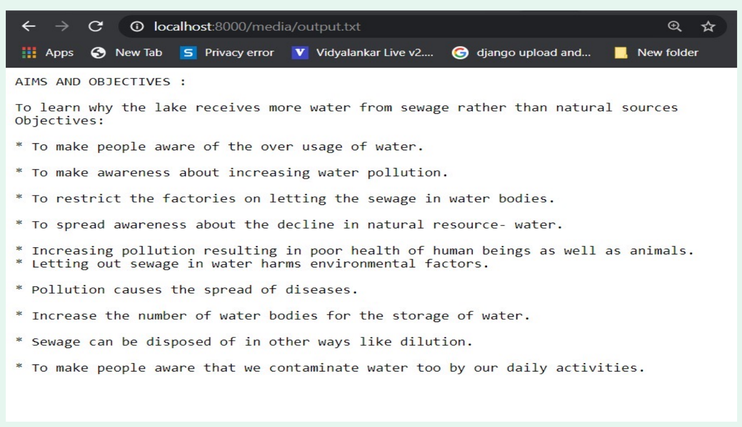

Fig.2 Output of Extraction of text from an image

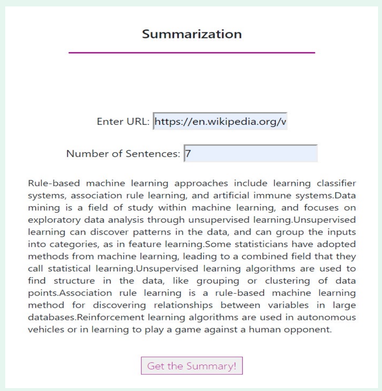

Fig.3 Output of URL Summarization

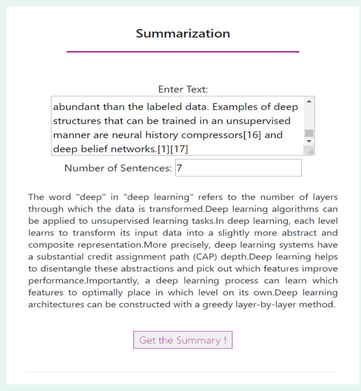

Fig.4 Output of Article Summarization

Fig.5 Output of Hindi Translation

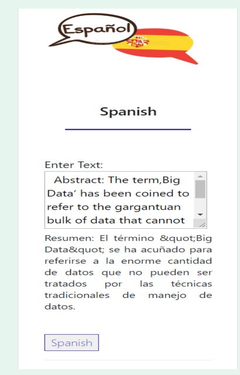

Fig.6 Output of Spanish Translation

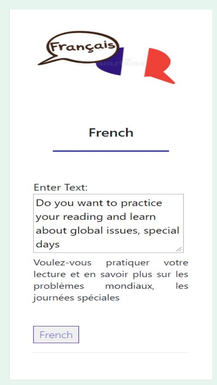

Fig.7 Output of French Translation

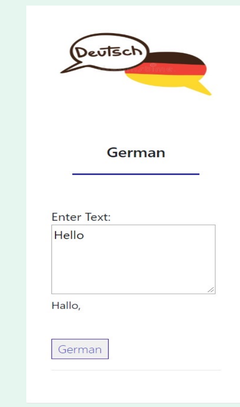

Fig.8 Output of German Translation

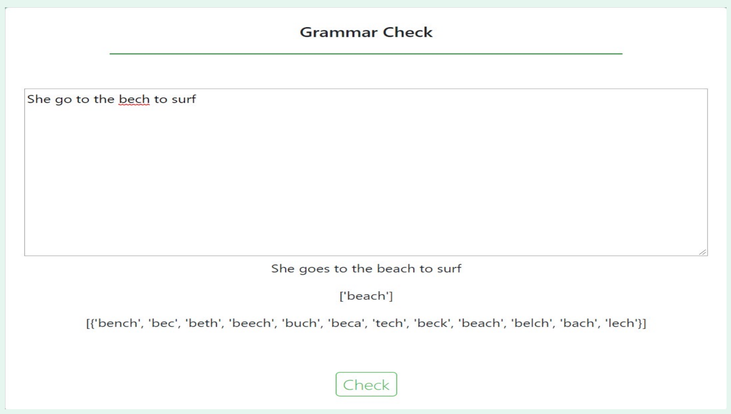

Fig.9 Output of Grammar Check

6. Conclusion

➢ In conclusion, this system can be implemented and will prove to be effective for anybody in any walk of life. All the basic text-based functionalities integrated together will ease the work of the user and will save time and energy. It will not only break the ice between people but also make communication and understanding better. Enriched user experience also proves to be one of the most interesting and dynamic factors of this system.

References

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[3] Sandeep Saini, Vineet Sahula, "A Survey of Machine Translation Techniques and Systems for Indian Languages", *IEEE International Conference on Computational Intelligence & Communication Technology.*