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Online Translator for African Languages

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Abstract

The world is slowly turning into a global village and borders that once stood between cultures now serve as bridges for the enjoyment of diversity among people of different races and ethnicities. At the forefront of this change is the English language which stands as the global medium of communication. This modern renaissance of human interaction may bring about a lot of positive changes and development in such areas as economics and trade. The internet has brought about a digital revolution and resized this world into a global village. However, this development has resulted in the emergence of new challenges. A predominant and critical one is that of the use and range of multi-languages which has inevitably acted as a barrier to effective communication. A number of attempts have been made to introduce online translators for the world's major languages.
Unfortunately, Africa has not really benefited from this revolution as there are few indigenous African language translators online. The dire and urgent need for an online translator that can address African languages and interface with major Global languages can therefore, not be overemphasized.. The development and use of such a translator would open more African countries to various global connections and aid knowledge transfer and reduce the digital divide.

Keywords—*Language; Transalate,*

I. INTRODUCTION

The wide range of languages in Africa is a clear indication of its vast size. The presence of these languages online leaves much to be desired. According to the authors of [2] Africa has a population of over **1,242,762,551** which is **16.36%** of the world's population. It is well established that the issue of language barrier is one of the many factors contributing to most of Africa's large population not having access to the internet. Most of the content on the internet is in other major world recognized languages such as English and Chinese.

The Merriam-Webster Dictionary [3] defines language as "the words, their pronunciation, and the methods of combining them used and understood by a community". A translator can therefore be defined as ***a person or machine that can simplify the sense and understanding of one language from another one.***

According to Klaus [1] Africa is a continent with a very high linguistic diversity. There are approximately 1500-2000 African languages. Of these languages, four main groupings can be distinguished:

A. ***Afro-Asiatic***

(Approximately 200 languages) covering nearly Northern Africa (including the horn of Africa, Central Sahara et the top Nile)

B. ***Nilo-Saharian***

Gathering approximately 140 languages with some eleven millions speakers scattered in Central and Eastern Africa.

C. ***Niger-Saharian (Niger-Congo)***

Covering the two third of Africa with as a principal branch the Niger-Congo which gathers more than 1000 languages with some 200 million speakers. The Bantu languages of Central, Southern, and Eastern Africa form a sub-group of the Niger Congo branch.

D. ***Khoisan***

gathering about thirty languages in Western part of Southern Africa.

However, it is quite a demanding task to create separate or translated content throughout the internet. Nevertheless, we can create a platform that can help users translate content from one language into another and consequently aid and ease communication.

This paper introduces our design of a web base African language/English Language Translator that will accommodate all major African Languages This platform shall be called ***Afro Translator***.

II. RELATED WORKS

A. Google Transaltor and bing Transaltor

Google and Bing translators are perhaps the most popular in the world today. However, Aiken and Balan[1] point out that it has been observed that these two translator systems are good at translating European languages rather than other continental languages such as Asian and African. The few African languages that are found on these platforms seem to have a much weaker translation form than the other European languages. Most of the languages from Africa are not found on both Google and Bing.

The platform we have designed on **Afro-Translator** is tailor made to include all major African languages. Every country in Africa will be included in the system. It will also have the ability to add countries as well as grow its vocabulary base through the use of volunteers and crowd sourcing. These will contribute to the project subject to approval from administrators.

*B. **Other solutions***

Other solutions are mobile apps and country-based web apps such as http://webtrance.skycode.com. Just as much as Mobile apps are useful, they may not be very suitable as most people are not very keen in installing such apps. They feel they need to save on their storage space. On the other hand, country- based apps are excellent tools but are limited as to the number of users that may need to access them. The Afro-Translator has the ability and flexibly of adding more languages and content to address such limitations.

III. RESEARCH METHODOLOGY

The research aim was to ascertain and investigate the following:

- Current existing online translators and their pros and cons
- The number of people using current solutions
- Reliability and accuracy of current solutions

Questionnaires were used to gather both quantitative and qualitative data.

The findings of the research include the following:

- **62.3 %** did not know that there where online translator and thus have never used any such online platform.
- **25.1 %** have used online translator for varied reasons such as online chat with foreign nationals, but only 10 % have used them to lean a new language. Out of this number 69% percent thought it was accurate while the rest did not have.
- **15%** know about online translators but have never used them.
- **All** seem to unanimously agree that it is a good idea to have an African language translator.
- I also took the liberty to check up online statistic of people using the most popular online translators. Google translator has recorded that the site is visited by about 200 million people every day. This shows that there is a need for more online translators.

IV. DESIGN OF ONLINE AFRICAN LANGUAGE TRANSLATOR

The system was designed with two major Interface i.e. Frontend and backend.

Front End

The front end contains the main home page which has the actual translator interface

Home About us Login Contribute

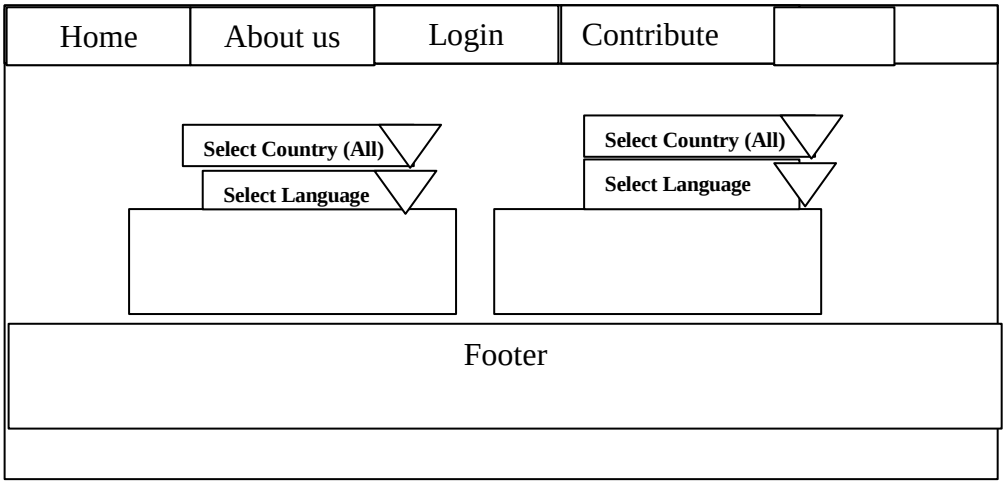

Figure 1.1: Home page

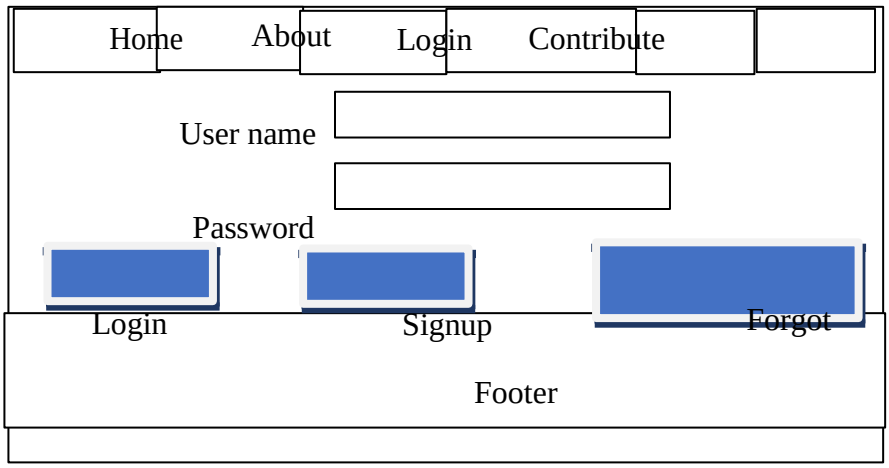

Figure 1.2: Login Page

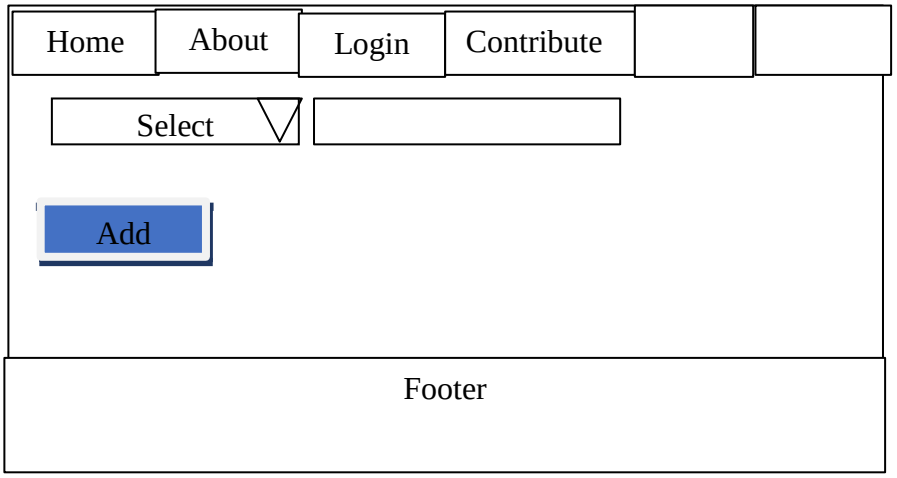

Figure 1.3: New words page

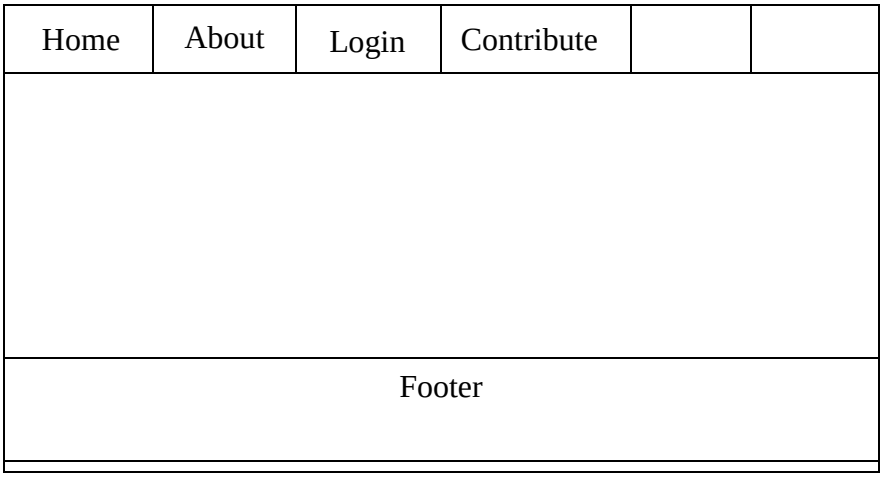

Figure 1.4: Individual Profile/Log

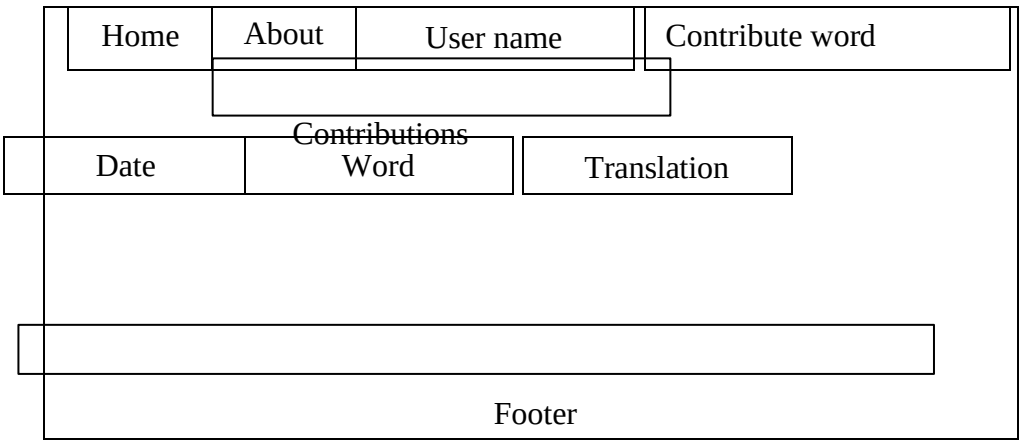

Figure 1.5: Admin panel

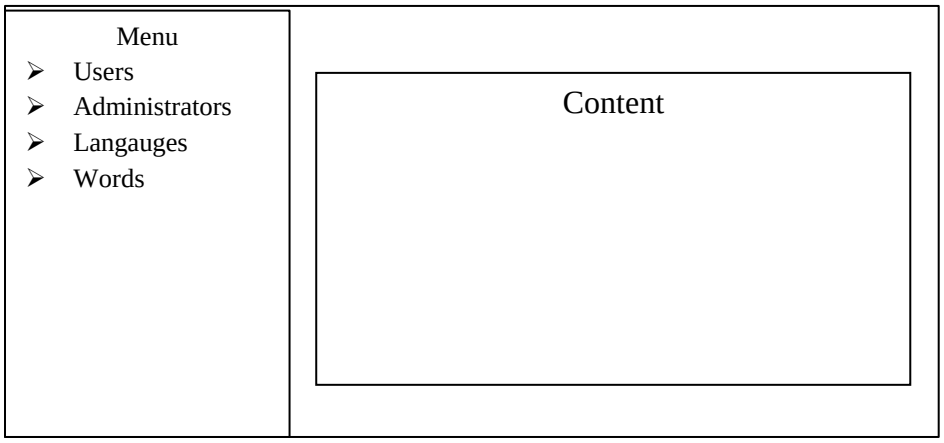

Figure 1.7 : new language form

The home page (figure 1.1) has the translator which also give options to select the country and language one would like translated. One can key in a word or statement to be translated and the system automatically translates that in real time. A button is available in case you are using a mobile device. The Login page (figure 1.2) gives the user the ability to login into the site and have rights to contribute to the system dictionary. Other accompanying pages include Sign up page and forgot password page. The new word page (figure 1.3) provides the user the ability to add words into the system dictionary. Users can suggest a new languages by clicking the add language page(Figure 1.7). The approval is subject to approval by administrators.
The individual profile page (figure 1.4) enables the user to see their contribution history to the system dictionary. The admin panel (figure 1.5) enable administrators

1. Approve languages

2. Manage user profiles

3. Monitor system usage

The language/cultural history page helps users have preview to languages and cultural history. Users can also send articles and write up to contribute to the history of their own languages and history.

v. DEVELOPMENT

*A. **Database***

The development of the application is based on PHP which is an open source language. It runs in a server which is known as Apache, MYSQL, which is an open-source relational database management system using the SQL (Structured Query Language). The relationship between functional unit table within the database and the table was represented by ER diagram. AJAX which means Asynchronous JavaScript and XML. This combination of language helped us

achieve live search which is very cardinal to enable efficiency in data usage and server requests

B. ***User-Interface Screen***

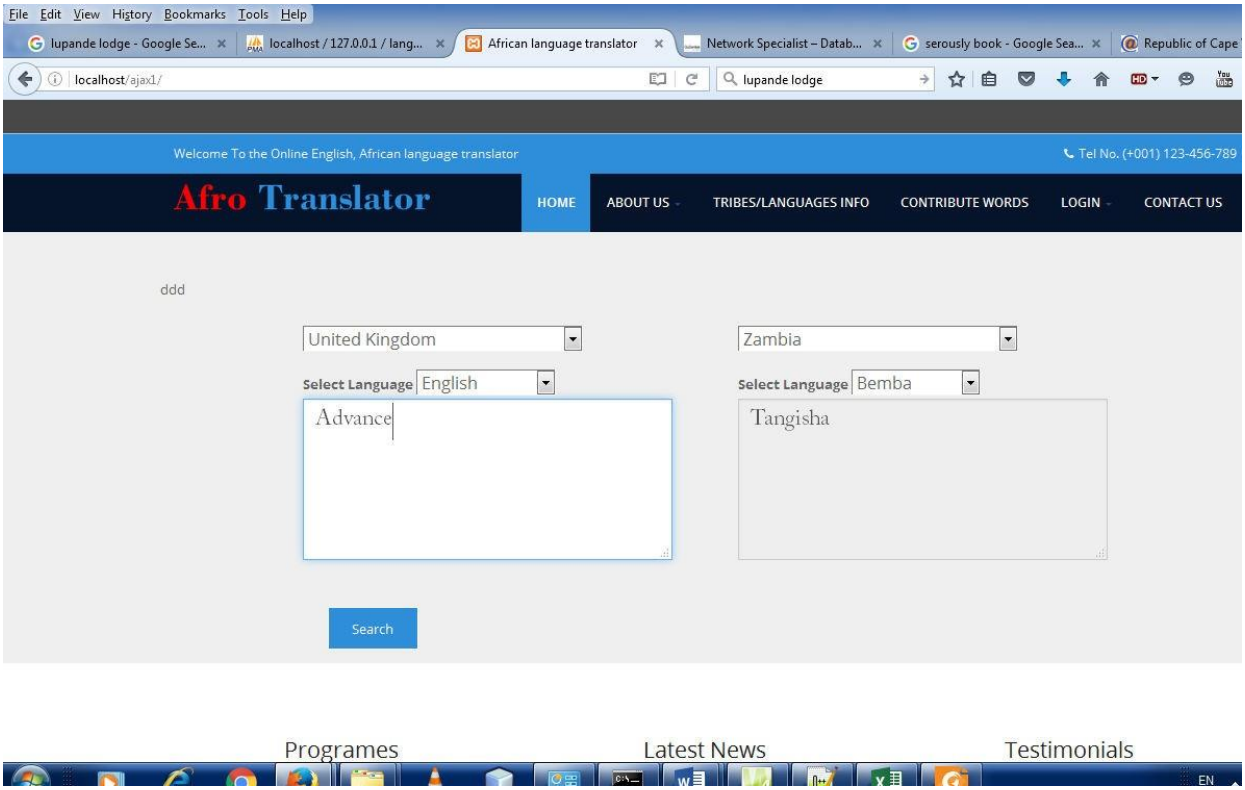

Figure 2.0.

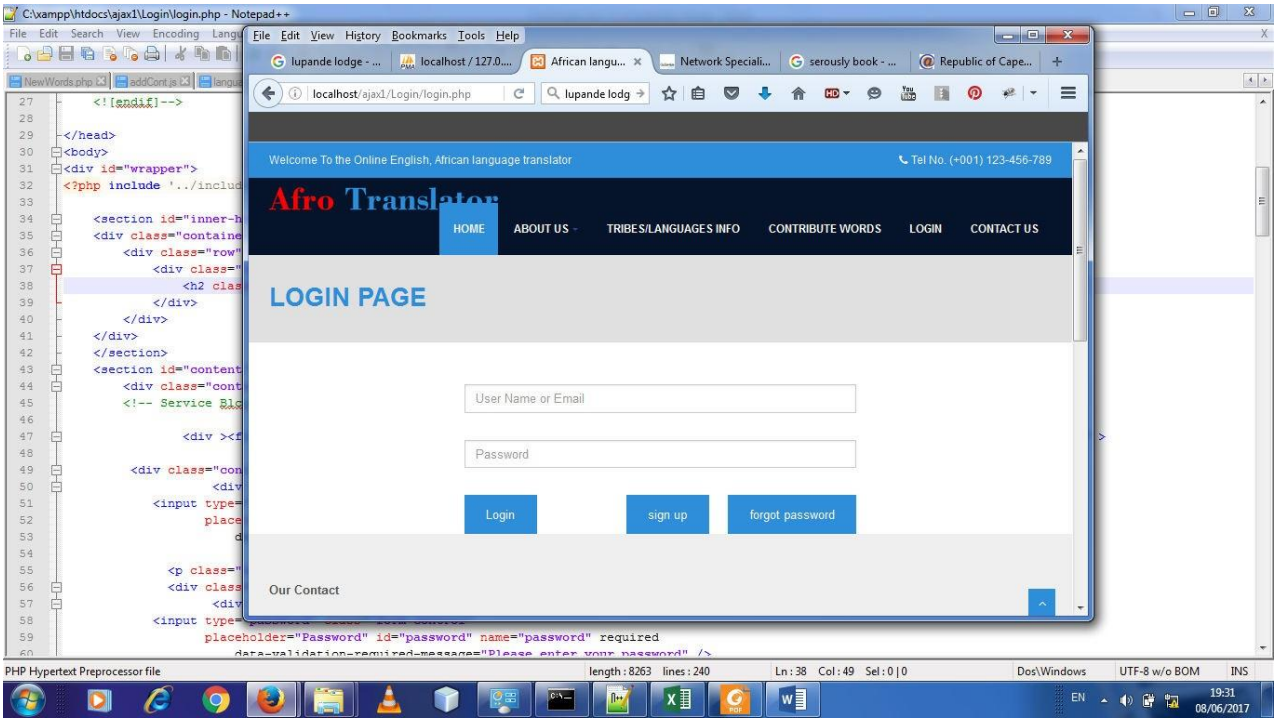

Figure 2.1: Home page/ Search Page

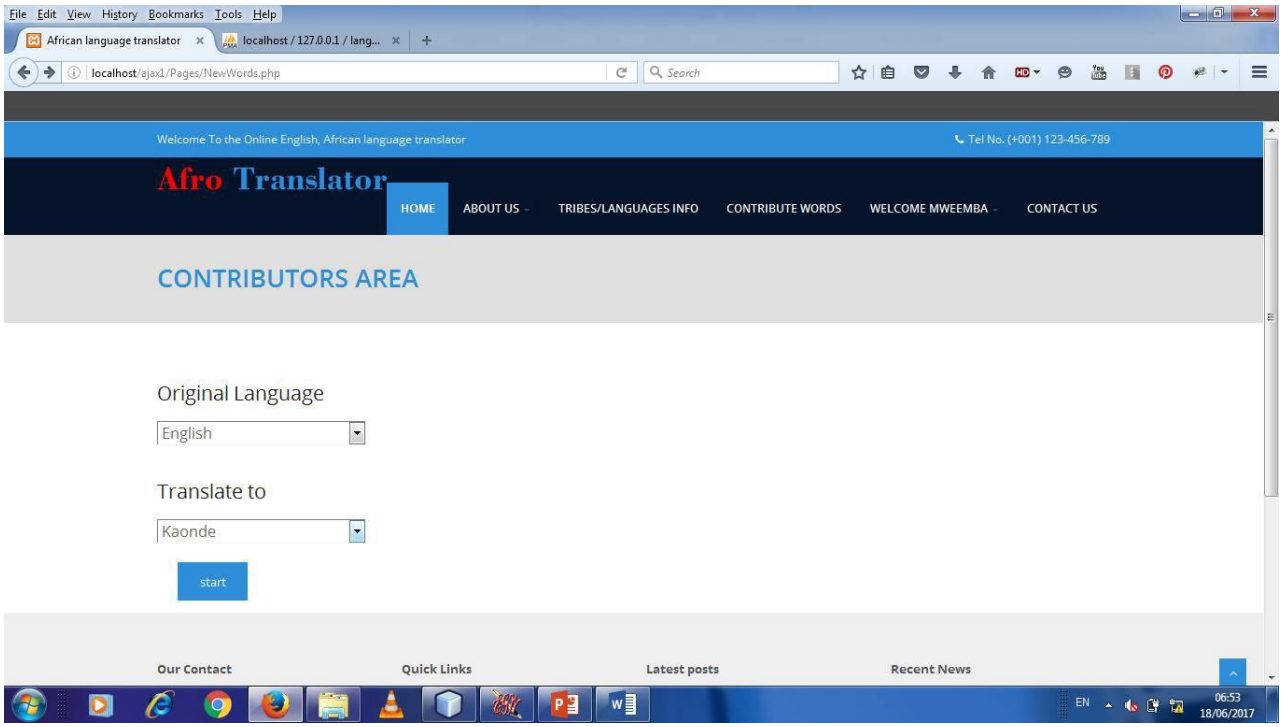

Figure 2.2: Login Page

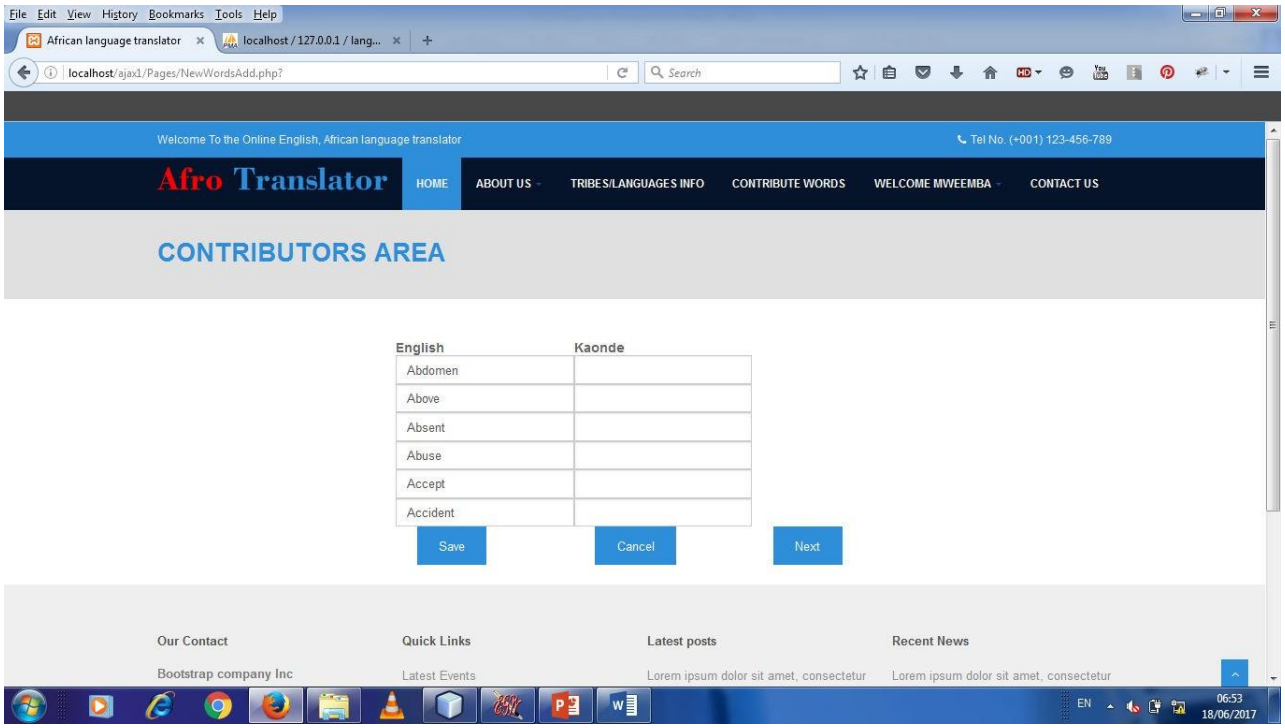

Figure 2.3:

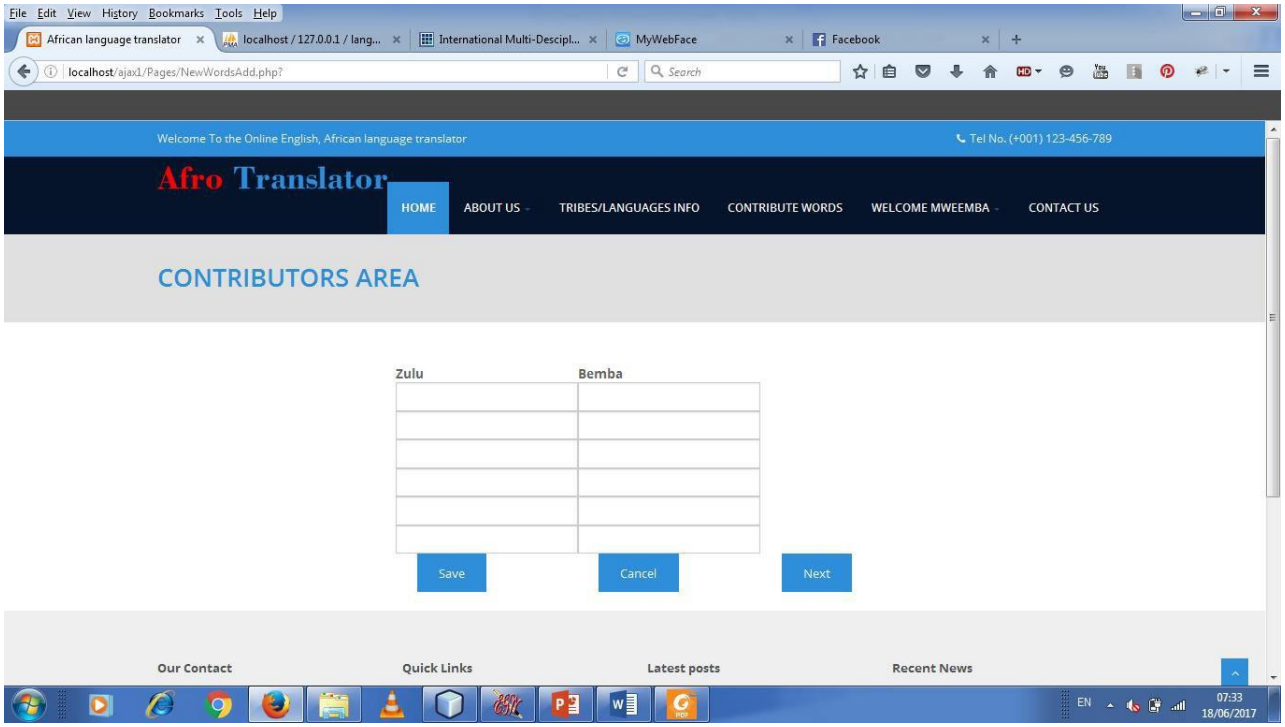

Figure 2.4: Contributors Area

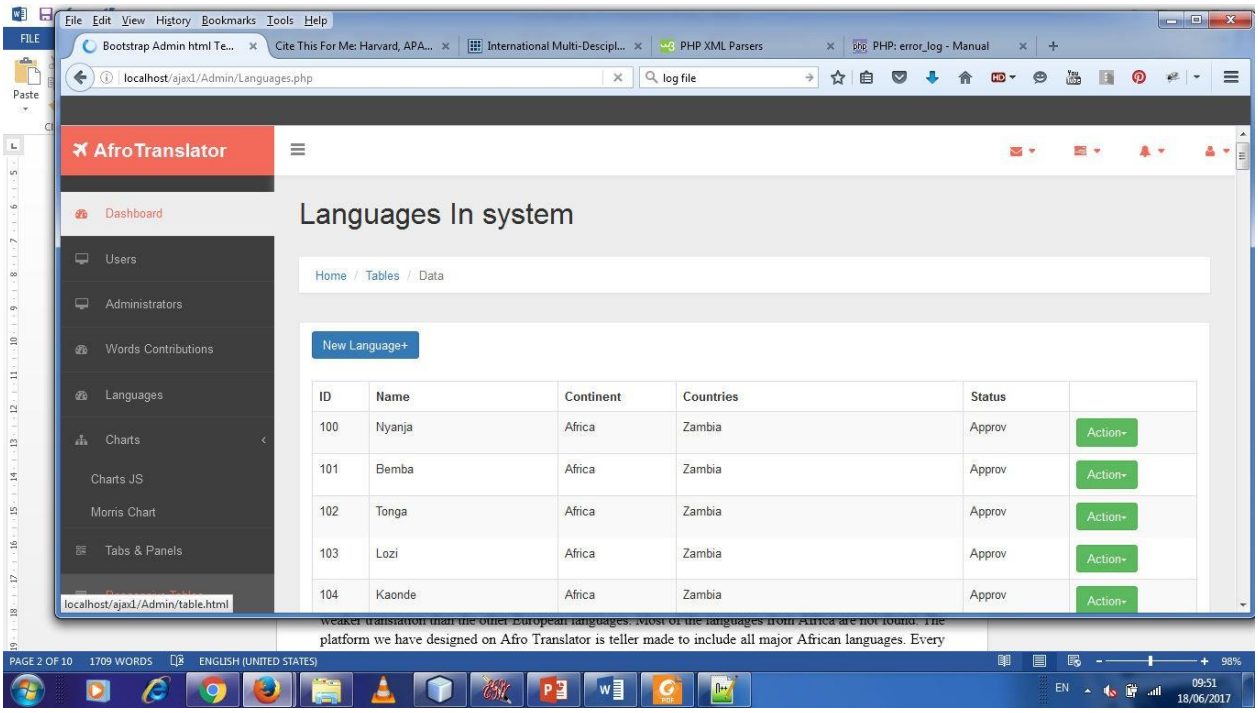

Figure 2.5: Admin Panel

C. Implimentation

The system is a table Intelligent Agent capable of searching the table for words. It is also capable of combining words to add them up to produce a statement out of sing words. The priority is to find a whole terms and if that fails, it attempts to find individual words and combine them as a series of words and interpret and display them to the user.
The use of AJAX (Asynchronous JavaScript and XML) has been primarily used to implement a live search that will be able to find results with minimum system resource used

VI. RESULTS

We have tested the system's main areas such as the translator itself we found that it is capable of translating words in database in all the different languages. We also had to carry out research of the major languages spoken in different African languages and we have catered for each of these languages. The system is also able to add more languages to its database. Users can propose a language and after some relevant research by administrators, we can add it to our list.

As seen in the screen shots, the system is able to allow users to contribute to the system's dictionary and add translations either from English or completely new from other languages. The system also provides for users to see the history of different languages and cultures within Africa. Users can equally make the system grow in terms of its knowledge of different languages through their interaction with it.

The Admin panel for Afro Translator provides for important features such as user management (Delete, suspend and View). The admins can also add words, Edit and delete as well as search for words.

VII. DISCUSSION

The system will fundamentally be valuable to enhance culture exchange and communication for both African and non-African people. It is a leaning system with the ability to evolve into a more natural language system and also include voice pronunciations which is a future possibility. Pictures for objects can also be added to the system to enhance and simplify comprehension of content. Other innovations to this will include a mobile app version of the system in the future. Since languages are dynamic and evolve overtime, the system has the flexibility to meet such demands.

VIII.● CONCLUSION

It can be concluded that Afro translator is a viable and convenient system that is needed system by members of the public. It will add value to their social, economic, political and cultural lives. Their digital experiences will be much more enjoyable and worthwhile. It will also enhance tourism and cultural interaction among heterogeneous people within Africa and globally. In a similar context, the system could possibly act as a reference in education for local languages. It will be a platform for Africa and its people as well as those who would

like to learn African languages. For a long time, these languages have been sidelined on line and not given the full attention and value the deserve. It is hoped that Afro Translator could encourage operating system software developers to include African languages as part of their dictionary database. This will in turn reduce the digital divide and make computers much more user friendly and valuable to all.

IX. • ACKNOWLEDGEMENT

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x. REFERENCES

[1]"The Definition Of Translate". *Dictionary.com*. N.p., 2017. Web. 21 May 2017.

[2]"Population Of Africa (2017) - Worldometers". *Worldometers.info*. N.p., 2017. Web. 21 May 2017.

[3]Nationsonline.org, klaus. "Spoken Languages Of African Countries - Nations Online Project".

[4]*Nationsonline.org*. N.p., 2017. Web. 21 May 2017.

[5]"Definition Of LANGUAGE". *Merriam-webster.com*. N.p., 2017. Web. 21 May 2017.

[6]Aiken, Milam, and Shilpa Balan. "An Analysis Of Google Translate Accuracy".

[7]*Translationjournal.net*. N.p., 2017. Web. 22 May 2017.