

Cebuano Mobile: Your Handy Translator

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Abstract

An extension and improvement in human communication, these have been the key principle behind mobile phones. The necessity and availability of mobile phones around the world is growing in a very fast rate, and thousands of people around the globe own this very handy device, tiny enough to be carried on a grown man's palm.

In terms of communication among people around the world, different languages still hinders communication no matter how advance technology had grown. This problem is common in the Philippines, foreigners or tourists visit and/or settle in the Philippines bringing with them their own language as their medium of speech. In addition, the Philippines have more than a hundred distinct dialects, making it even harder for others to communicate due to these language barriers.

Given these data and facts, the project team developed a mobile application that can translate from English to Cebuano, and vice versa. It also includes the Cebuano sound translations so the users can listen to the translations in Cebuano. This would be very useful, especially for foreigners in need or interested in learning the local language. Knowing how to pronounce and speak the correct pronunciation of a Cebuano word can also be very helpful for foreigners and/or tourists.

During the user testing and evaluation of the mobile application displayed remarkable results, 96% percent of the total foreign respondents said that the mobile application is helpful to them. This result alone concludes that the project team have completed their objective and justified the project's significance

1. Introduction

Language barriers can cause communication difficulties among citizens from different countries, including the Philippines. In the Philippines alone, there are over 170 dialects of which about twelve, belonging to the Malayo-Polynesian language family, are of regional importance. Of all these languages only Filipino and English are considered to be official in the country. Cited from the website Philippine-portal.com, Cebuano is one of the languages in the Philippines which are part of the major regional languages as well as an auxiliary language. Cebu, Bohol, eastern Negros, western Leyte, and parts of Mindanao are places that widely use the Cebuano language.

For foreigners and for some Filipinos, learning the Cebuano language is not an easy task. To aid in the understanding and communication among foreigners, Cebuano speakers, and other Filipino non-Cebuano speakers, the project team developed a mobile application that provides translations from Cebuano to English and English to Cebuano including the Cebuano word's corresponding pronunciation. The Cebuano and English word translation is based from the Dictionary entitled "English-Pilipino Visayan (Hiligaynon-Cebuano)" by Amparo, Nazaria D.

Baz T. Guerero, and Reynaldo De Dios which contains approximately 14,750 English and Cebuano words. The portable implementations of this application give an advantage for users to learn the Cebuano and English vice versa translation when and where they want it in a very handy fashion.

Development of the system includes database storage of Cebuano and English translations as well as pronunciation sound recordings of Cebuano words. Figure 1 depicts the general flow of the project development and implementation.

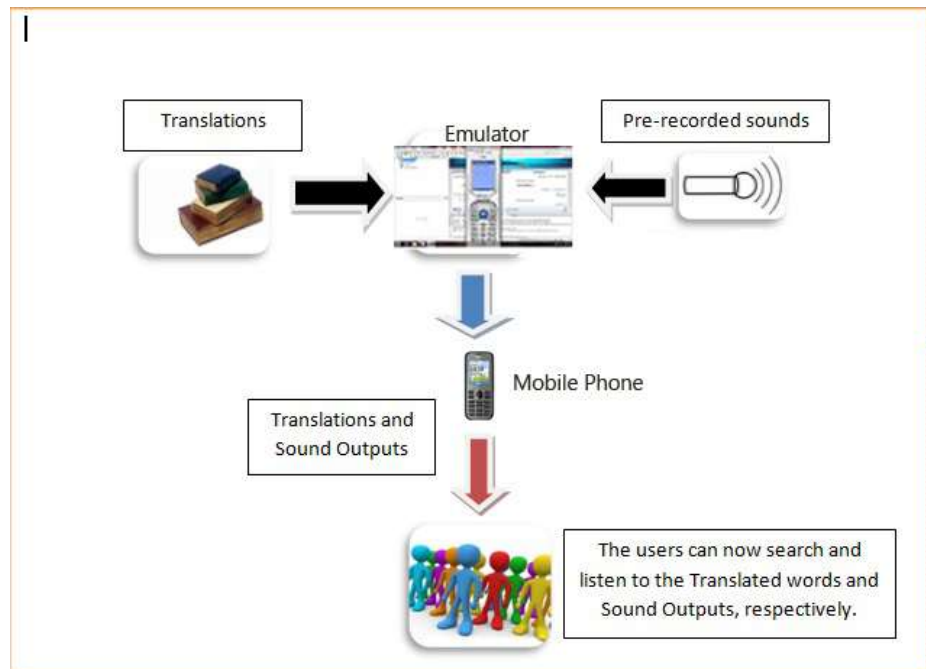


Figure 1: Project Development Diagram

2. Methods

2.1 Design Model

The development of the application follows the incremental development model wherein development of requirements process and the delivery of the system are done in an incremental manner. This kind of software engineering process is depicted in Figure 2 and it contains the following key features. Development and delivery is broken down into increments and for each increment, it delivers part of the required functionality. Requirements are prioritized and the highest priority requirements are included in the early increments and once the development of an increment is started, the requirements are frozen.

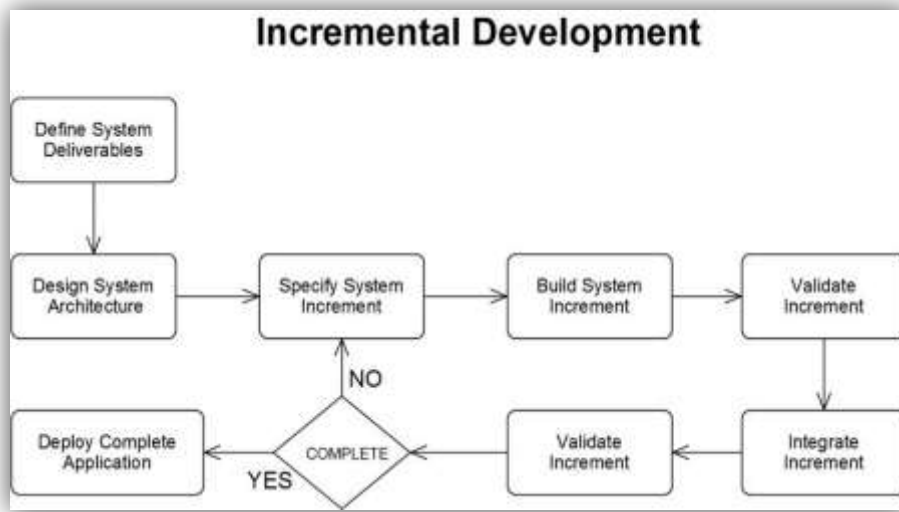


Figure 2: Engineering process

2.2 Tools and Instruments

The huge amount of data storage needed to contain the database of Cebuano and English words was a major consideration in the development of the application. Considering predominant mobile phones upon development of this system have limited resources, much attention was focused on the type of phone and the memory capacity it has. The study of Johansson and Jonas Svensson “Techniques for Software Portability in Mobile Development” claims that only 11% of the phones released have storage above 100MB.

Nokia S40 6th edition, S60 1st and 3rd Edition SDKs based on Symbian Operating System was utilized in the development of the application. These SDKs being the state-of-the-art toolbox for mobile app development provides device emulation stand alone development environment, and a set of utilities for rapid development of Java ME application.

2.2 Physical Database Schema

The direct translation of Cebuano and English words was certain to increased performance of word translation. Table 1 illustrates how the direct translations are being structured in the design of the physical database schema.

	English Word (Col. 0)	Cebuano Word (Col. 1)	Related Translation(s) ID (Col. 2)
Row 0	(0,0) abolish	(0,1)pag-undang	(0,2) 151-9191-
Row 1	(1,0) accident	(1,1)disgrasya	(1,2) 1529
Row 151	(151, 0) adjourn	(151, 1)pag-undang	(151,2)
Row 1529	(1529,0) casualty	(1529, 1)disgrasya	(1529,2)
Row 9191	(9191,0) quit	(9191, 1)pag-undang	(9191,2)

Table 1: Dictionary Structure

The first and the second column is a direct translation between the words. The fact that a word in English or Cebuano may have one or more translation, the third column is an index row-map

relationship of a word to its other meaning. This approach assures tuples in the database at its minimal.

3. System Design

Figure 3 depicts the overall functionalities of the mobile application. Following figure (Figure 5) is a sample screenshot of the application as translation of words are executed.

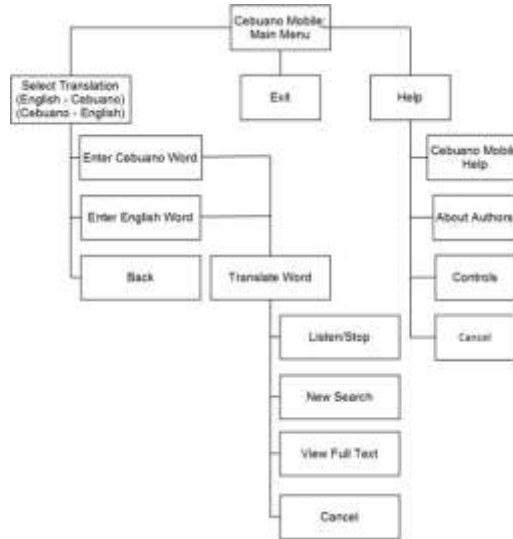


Figure 3: Decomposition Chart

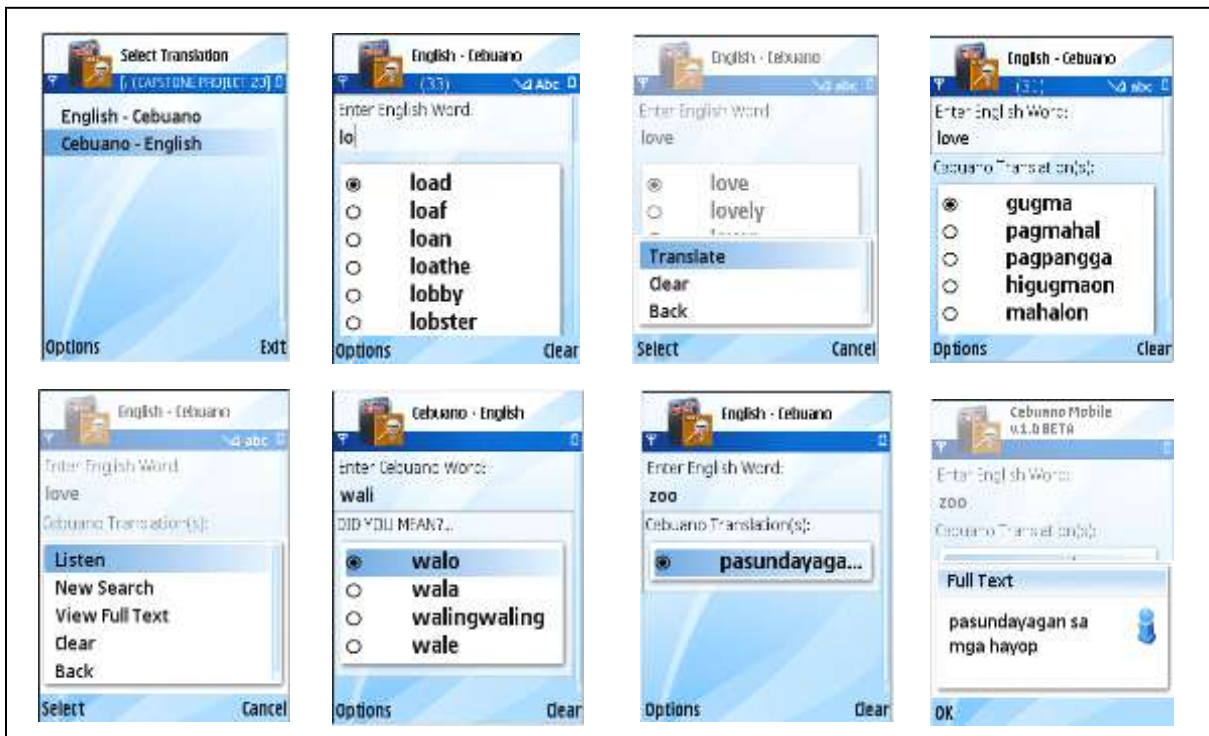


Figure 5: Screen Shots

The main screen contains a selection of English-Cebuano or Cebuano-English translation. Selection and help support can be loaded by selecting the options menu. A real-time search suggestion or an auto-complete feature is also provided to help guide users during translation. The listen option plays an audio file that would provide pronunciation of the word being selected.

4. Testing and Evaluation

A one week testing and evaluation in a form of a paper-based survey was conducted to get direct feedbacks/suggestions from the user right after the hands-on testing of the mobile application. It also enables valuable improvement to the application as some minor errors were observed during the testing.

Since the application is intended for foreigners, test was conducted to one-hundred (100) distinct Silliman foreign student respondents who are non-Cebuano speakers. Distribution is reflected in Figure 6. For each of the respondents, they are required to test the application and later evaluate the application by answering a series of questions to verify usefulness, response time, ease of use and among others.

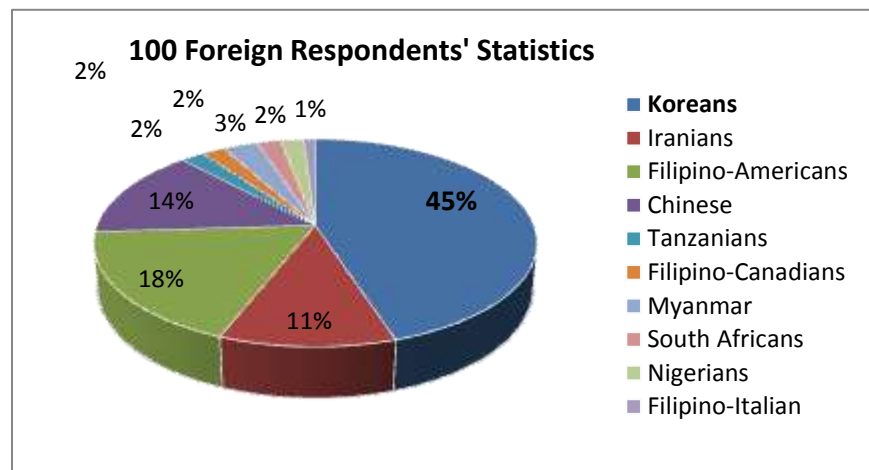


Figure 6: Respondents Distribution

The tests were conducted in such manner as having each of them installed the application on their mobile phone. The one week duration of the tests would help evaluate the functionalities and the usefulness of the application. One significant question that would add impact on the evaluation of the application is the one that verifies which part of the mobile application they like the most. Their answer is reflected on Figure 7.

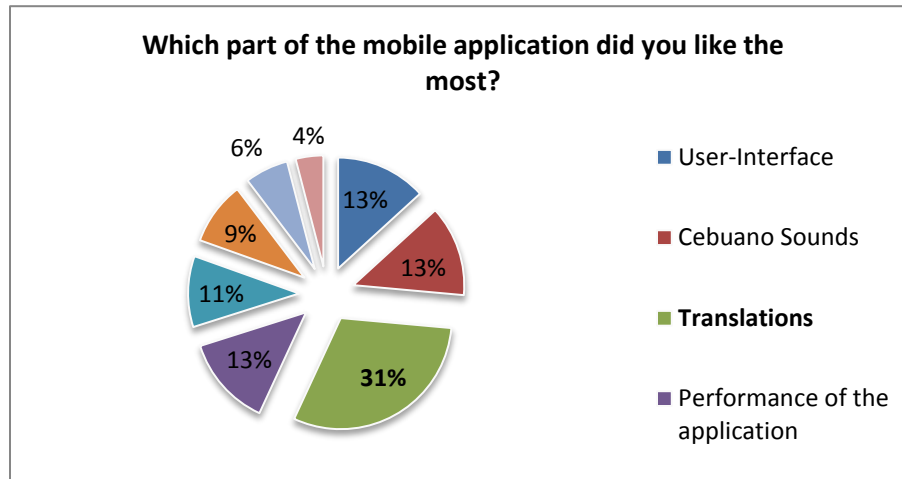


Figure 7: Top 4 most liked feature

5. Conclusion and Recommendation

The mobile application and its features were found to satisfy approximately 96% of the respondents. A rating of 91% and 92% were also given for ease of use and the appreciation of the pronunciation audio support respectively. Observation during the testing was that excitement and deep interest to the application usage was present to most of them. Furthermore, 96% of the respondents have concluded that the mobile application is helpful in learning the Cebuano dialect and its corresponding English translations.

The applications compatibility on java-enabled phones from various manufacturers like Nokia, LG, Samsung and Sony Ericson also makes the application a plus. Its ability to fit and adjust on various mobile screen resolutions and touch screens adds to the applications portability.

Lastly, it is recommended that improvements to the system would include addition of English conversational phrases translation.e.g.(“Good Morning = MaayongBuntag”, “I love You = Gihigugmatikaw”).

6. References

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