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Research Article

VOICE TO CODE CONVERTER USING JAVA AND C: GET WHAT YOU SPEAK

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A R T I C L E I N F O

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A B S T R A C T

Code generator and translator is system that will help an individual to generate a code in a chosen language that it sets a platform to convert the voice based tokens spoken in English into Code with proper syntax of the selected language such as C and JAVA. The input to the software can be given in form of speech or text as per the user's delight which makes the software convenient to use. Our software is capable of speech recognition and natural language processing and generating, compiling and translating codes as per the need of the customer. It is especially for users with a disability or some sort of handicap have the disability of writing a piece of code in that case one can use our system since it largely works on speech. Our project takes keywords like For loop, If Else Condition, Addition etc. as input and generate the relevant program. It can also be used an excellent training system since trainee can use synonyms to write the syntax for particular function or code. They can do this both using text and speech as input. This kind of scalability and versatility is what makes our system so valuable and filled with potential.

INTRODUCTION

The idea behind the development of the code generator and translator is simple and for the masses. In order to keep up with the rapidly changing environment and advances in coding, coders need to be well acquainted with the emergent languages entering the market. It is especially helpful to people who unable to code or rather type due any disability. This platform provides the people without a coding background with the opportunity to use natural language to generate the code in any desired language. It hence, provides a platform for amateur coders to learn syntaxes of new languages.[2]

The proposed software will play a vital role for the non-coders, promising coders as well as people with disability related to code typing, as it provides with a platform which gives them the choice of entering the input in form of speech or text for the generation of the code. The user will also have the choice of converting the source code or the given input into another programming language provided that the both languages will be of the same orientation that is, object or procedure oriented. Using speech as input to write the code will help the programmer in learning the syntax as well as save time by getting a typed code. The software provides a useful integrated development environment.

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Related Work

mtSystem: They translate C source code to Java source code. The translation is completely automatic, supports the entire C language and creates functionally equivalent Java code - ready to be executed.

Features offered by them

Pointers are optimized away or translated to readable Java classes, function pointers are translated to method references. Full support for unsigned types. Full support for go-to statements. Full support for native libraries; the translated Java project seamlessly interfaces with libraries (GMP, Ncurses, X11) the C project used. Macros are translated to Java methods or constants. Comments are preserved and reformatted to Javadoc. The translated code adheres to the Java design and naming conventions.

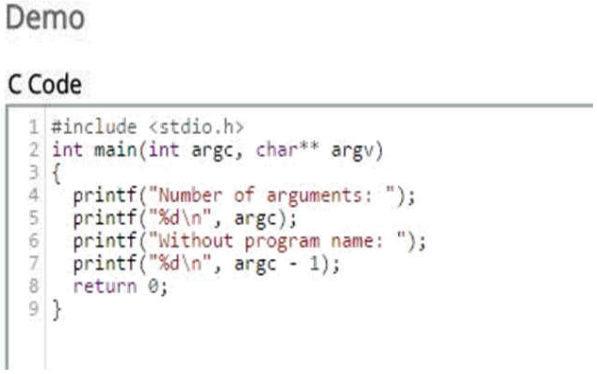

Figure 1 Source code in C[8]

Demo

C Code

```c
#include <stdio.h>
int main(int argc, char** argv)
{
  printf("Number of arguments: ");
  printf("%d\n", argc);
  printf("Without program name: ");
  printf("%d\n", argc - 1);
  return 0;
}
```

Figure 1 Source code in C[8]

Translated Java Code

```java
package demo;

public class DemoTranslation {
    public static void main(String[] args) {
        System.out.print("Number of arguments: ");
        System.out.println(args.length + 1);
        System.out.print("Without program name: ");
        System.out.println(args.length);
    }
}
```

Figure 2 Translated code in Java [8]

Vary Code: Vary Code team is a group of professionals focused on programming code conversions between different programming languages. Years of experience in outsourcing with regular customers and weariness to develop and support multitude of software converters simultaneously pushed us to create the online service available not only for selected companies but for individuals as well. The Service is not supposed to be an ultimate one-click solution one can easily migrate between platforms with. The lion's share of conversions of nontrivial snippets of code will for certain require some human hand-crafted adjustments. Most of the time it is not only about correcting and improving the output but eliminating ambiguities in the original source code as well.

Telerik Code Converter: Code Converter is a free and easy-to-use VB to C# and C# to VB code converter. There are many other available converters but a lot of them are very difficult to use or don‟t convert accurately. Code Converter aims to address these issues and provide the best free .NET converter available on the web. Code converter is provided for free by Telerik.

Convert Code C# to VB

Enable Tab Key Batch Converter

```
using System;
namespace HelloWorld
{
    class Hello
    {
        static void Main()
        {
            Console.WriteLine("Hello World!");

            // Keep the console window open in debug
mode.
            Console.WriteLine("Press any key to
exit.");
            Console.ReadKey();
        }
    }
}
```

Figure 3 Source code in C# [11]

For the heavy lifting, we depend on the open source NRefactory library to perform code conversions. NRefactory is a powerful C# to VB and VB to C# conversion engine maintained by the developers at SharpDevelop. The existing code converter was built with Telerik UI for ASP.NET AJAX, a suite of 80+ ASP.NET Ajax controls which allow developers to build ASP.NET Ajax web applications for any browser and device.

Show highlighted syntax

```
Namespace HelloWorld
        Class Hello
                Private Shared Sub Main()
                        Console.WriteLine("Hello
World!")

                        ' Keep the console window
open in debug mode.
                        Console.WriteLine("Press
any key to exit.")
                        Console.ReadKey()
                End Sub
        End Class
End Namespace

'=============================================
=====
```

Figure 4 Translated code in VB [11]

Proposed System

The flowchart is used to depict the flow of work of the given software. It show the various steps involved from obtaining the input, classification of the input and the processing it accordingly. It gives a basic gist how the application will work, Fig. 5 is the flowchart of the proposed system.

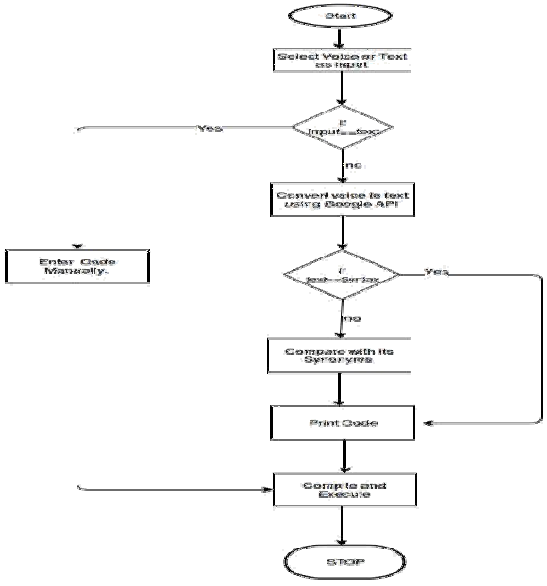

Figure 5 Flowchart

Block Diagram

The Fig. 6 depicts the processing of the input in form of text. The audio input goes through different set of modules where the natural language is processed and converted into the syntax of the desired output language.

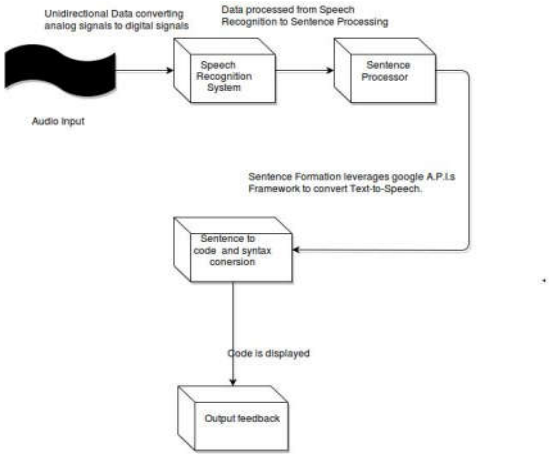

Figure 6 Processing input

Fig. 7 shows the processing of a for-loop for a given condition in the input.

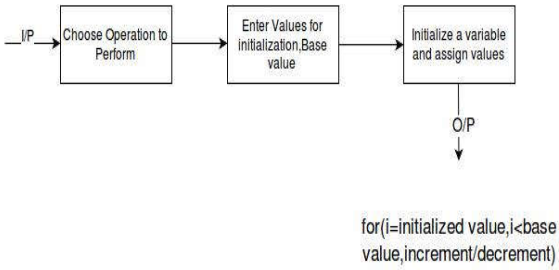

Figure 7 Block diagram for 'For loop'

Implementation

In this section we have described the use of Pycharm community where input is given either by speech or typing manually to generate the specific code or program. The below figures show the process of implementation of code:

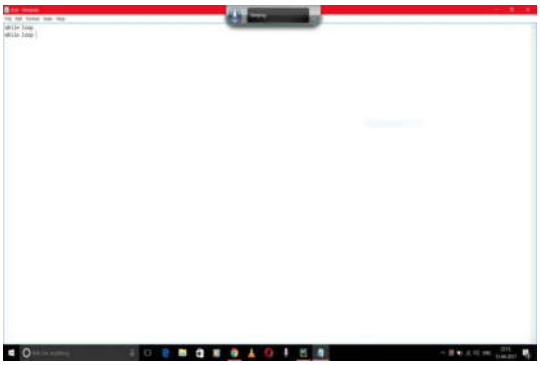

Figure 8 Speech as input

Figure 9 Language selection

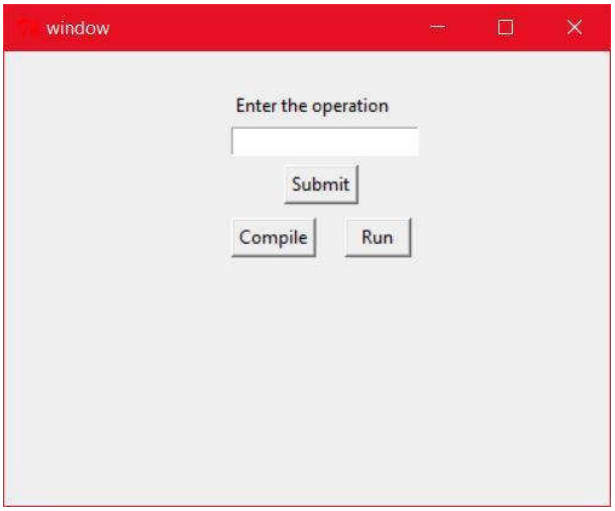

Figure 10.1 Performing operations

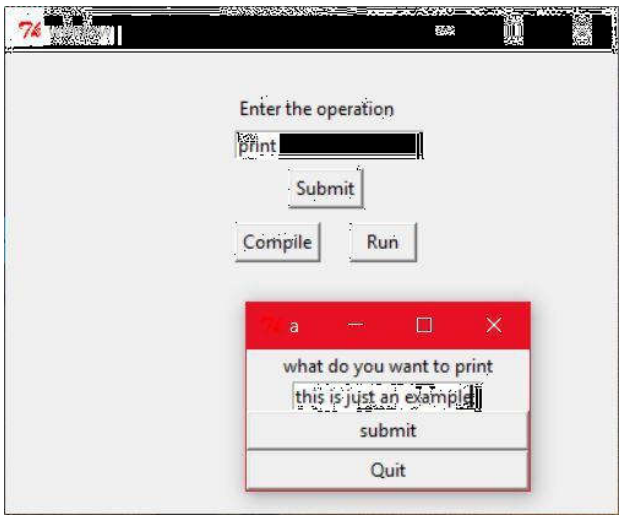

Figure 10.2 Performing operations

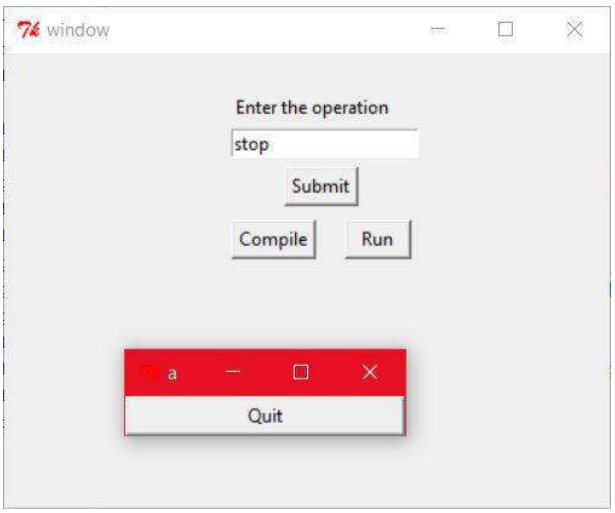

Figure 10 2 Performing operations

CONCLUSION

The Proposed System Smart Code Generator converts Voice to text and Converts it into Program Code. The output will be in the form of Program. It ensures that the System becomes User Friendly. We would like to elaborate the application of this system in the field of education by making this system totally

comfortable to the users. This type of systems can be used beginners as well as handicaps.

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We had with them. We would be failing in our duties if we do not make a mention of our family members including our parents for providing moral support, without which this work would not have been completed.

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