

## LINUX VOICE ASSISTANT: Galvin The Creation

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### I. Abstract

Galvin is an intelligent voice assistant made only for Linux Users to perform their day-to-day tasks quickly and efficiently. Its main goal is to attract users to the fantastic world of Linux. It can do everything that a general Linux user(newbie) wants to do in his day-to-day uses. It's just a prototype of what one can actually do with these ideas.

**Keywords:** NLP, OpenCV, CNNs, Shell script, Transformers, Python, IBM Watson

## II. Introduction

Galvin is an intelligent voice assistant that uses voice recognition, language processing algorithms, and voice synthesis to listen to specific voice commands and return relevant information or perform specific functions as requested by the user.

Based on specific commands, sometimes called intents, spoken by the user, voice assistants can return relevant information by listening for specific keywords and filtering out the ambient noise.

While voice assistants can be completely software-based and able to integrate into most devices, some assistants are designed specifically for single device applications, such as the Amazon Alexa Wall Clock.

Today, voice assistants are integrated into many of the devices we use on a daily basis, such as cell phones, computers, and smart speakers. Because of their wide array of integrations, there are several voice assistants who offer a particular feature set, while some choose to be open-ended to help with almost any situation at hand.

## III. Literature Survey

This idea came into our mind a long time ago so we try to build it. So here we are with his idea in its mid form. Here, inspiration came from iron man freaking Jarvis and voice assistants nowadays like Alexa, Google now,siri, and our useless Cortana. So we decided to build an assistant for Linux. It's a full fletch AI model so in order to build it lots of things we need to study first. Those skills in order are python programming, DB connectivity using python, data analysis, ML, NLP, DL, CNN, RNN, and Transformers too. By putting all those skills we created this project. There are lots of versions we have but now we have our working model ready to rock.

## IV. PROBLEM STATEMENT AND OBJECTIVE

### 1. Problem Statement

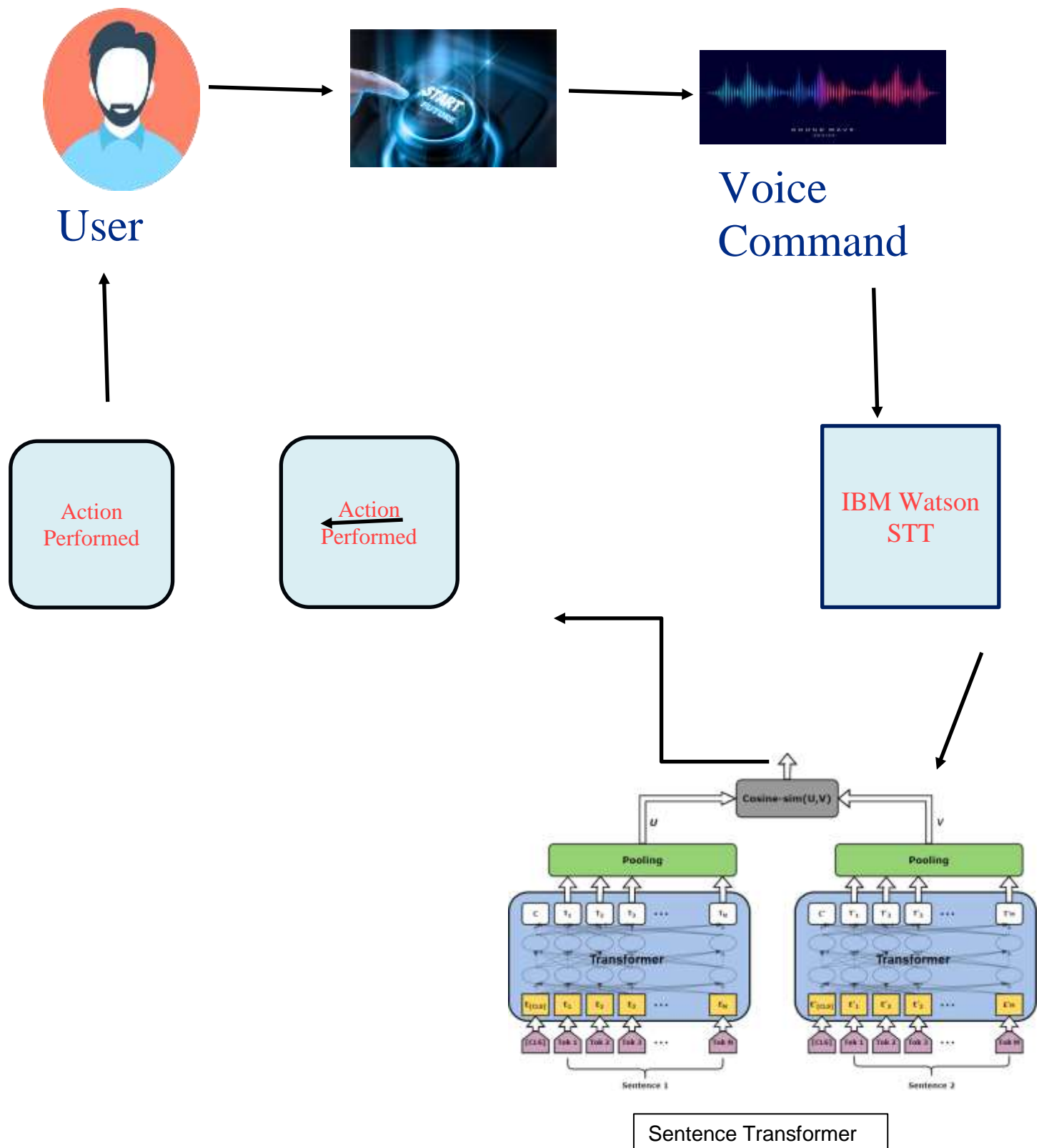
As you know there are 3 major Operating Systems are there for PC or Laptops, they are windows, apple, and Linux. Both windows and apple have their Voice assistant but Linux OS has not any voice assistants, which may distract lots of Linux users as well as new users towards Linux because assistants can do a task fastly as compared to doing this task manually. This was the problem that arises for a long time and eventually, we did its solution.

### 2. Objective

Galvin can help someone with basic tasks. It often understands natural language and can help with things like creating meeting requests, reporting a sports score, and sharing the weather forecast. Intelligent personal assistants have access to a large amount of information on a device or online, which enables them to perform simple tasks.

Other terms Galvin include chatbot, automated personal assistant, or automated virtual personal assistant.

## V. ARCHITECTURE DIAGRAM



## VI. FUTURE WORK

This is just a prototype of the actual thing. There are a lot of things one can add to make it even more awesome.

**Use better STT:** We are using python speech recognition or IBM Watson STT API for performing speech recognition tasks. But one can use any paid services or even train your own model.

**Use something better for command understanding:** We are using a sentence transformer to create sentence embedding and compare user command with stored commands (we have a DB of possible commands) to see to which category the user command belongs. If you want you can use any other technique to pull the job.

**Add more functionality:** We just implemented 35 to 40 features in our project. But as we know one can do anything using a Linux terminal, so make use of your terminal or shell script skills to add more features or functionalities to the project.

Here are some extra thing that one can add to take the project into next level:

1. **Add a Speaker recognition function** that can detect the user's voice and unlock all the functionalities of the current user. Which can work as extra security.
2. You can also add face recognition as an added security.
3. Train a chatbot model(which must be trained on the general computer and human conversation) which can talk and understand you. Which will make the program more lively.
4. You can convert this model into a **home assistant**, then you have no limit to expanding its functionality. You can add image captioning, object detection, and lot many more.

## VII. CONCLUSION

This project has lots of obstacles in front of it before reaching out to the users. Because people in the Linux community don't like to give control of their system to a simple assistant. They love to use terminals and do things on their own. Using Galvin also comes with some security issues. For example, some may hack into the system using a

vulnerability in our Galvin as a gateway. Ubuntu also made a system assistant before but failed measurably. So it needs lots of hard work and effort to make an entrance into the Linux community.

But people in the Linux community do love to support developers by using their products and making further developments. Lots of people will give us their hand to develop this project. But it has a long way to go.....