
MATLAB Assistant

MATLAB Assistant is a voice assistant tool that helps to perform predefined activities within MATLAB/Simulink.

Developed by: [Sysenso Systems](http://sysenso.com)

Contact: contactus@sysenso.com

Version: 1.0 - Initial Version.

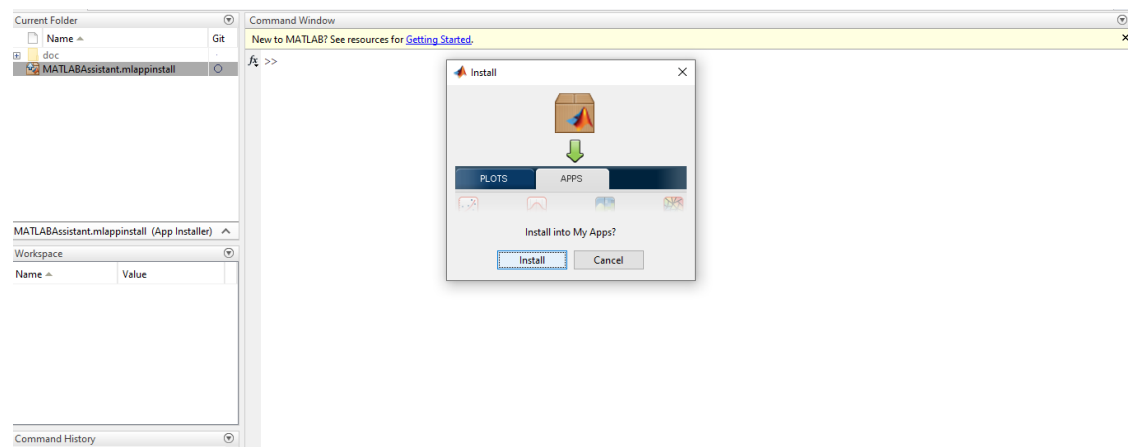
Prerequisite

- MATLAB & SIMULINK version 2015b-2020a
- Python version 3.9
- **Note:** Please note that the Python is installed and added to the system path. Also the following modules are installed within Python.
 1. [SpeechRecognition](#)
 2. [playsound](#)
 3. [gTTS](#)
 4. [PyAudio](#)
- **Important:** Please note that this utility is developed to share an idea of using voice recognition within MATLAB. There are some more error handling and improvements needed in this utility to use it as a real-world application. If there are any usage issues, it is expected that the user should be capable of debugging it and improving it.

Usage Information

Please follow the following steps for the usage of **MATLAB Assistant** in MATLAB.

- Please install the MATLABAssistant.mlappinstall which is under the utils folder.



- Once installed, the app **MATLAB Assistant** becomes visible under APPS Tab.



- Launch MATLAB Assistant App.
- The following predefined commands can be given as voice input to use the MATLAB Assistant.
 1. 'hey','hi','hello' for greetings.
 2. 'what is your name','what's your name','tell me your name' for getting app name.
 3. 'my name is (username)' to tell user name.
 4. 'how are you','how are you doing' for greetings.
 5. 'what's the time','tell me the time','what time is it' to know the time.
 6. 'search web for (search word)' to search anything in web.
 7. 'search youtube for (search word)' to search anything in youtube.
 8. 'help (inbuilt function)' to get the documentation for the inbuilt function in command window.
 9. 'search documentation for (search word)' to search anything in MATLAB documentation.
 10. 'clear base workspace' to clear the base workspace.
 11. 'clear command window screen' to clear the command window screen.
 12. 'open script as (script name)' to open a new script or an existing script with name as (script name).
 13. 'run matlab script (script name)' to run the given script as input.
 14. 'run active matlab script' to run the active MATLAB script in the editor window.
 15. 'open simulink' to open SIMULINK starting window.
 16. 'open simulink library browser' to open Simulink Library Browser.
 17. 'open new system' to open a Simulink system.
 18. 'open system (system name)' to open the Simulink system given as input.
 19. 'simulate system (system name)' to simulate the Simulink system given as input.
 20. 'simulate active system' to simulate the active Simulink system.
 21. 'about matlab assistant' to open the MATLAB Assistant document.
 22. 'exit matlab' to close the MATLAB window.
 23. 'exit', 'quit', 'goodbye' to exit the MATLAB Assistant.

Developer notes

- **Adding new Commands**

The following example shows the logic of how to clear command window screen using MATLAB Assistant.

```
existFlag = thereExists({'clear command window screen'}, voiceData);  
if existFlag  
    eval(char('clc'));  
    disp('MATLAB Assistant: command window screen is cleared');  
    py.record.speak(py.str('command window screen is cleared'));  
    return;  
end
```

The logic first checks whether voice input contains 'clear command window screen' string.

If the voiceData contains the string, then clear screen command i.e. '*clc*' is executed using '*eval*' command.

Like the above example, the developer can easily add more automation in the MATLAB Assistant.

- **Python Functions**

Python logic is coded in utils/assistantRecord.py. The user may have to update this functions to have better voice recognition. Please refer "Troubleshooting" section from the <https://pypi.org/project/SpeechRecognition/2.1.3/> page.

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