



**TITLE:** Programing speech recognition in scratch

### LEARNING SCENARIO

<b>School:</b>	<b>Duration (minutes):</b>	90
<b>Teacher:</b>	<b>Students' age:</b>	13-14

**Essential Question:**

How to make a program for speech recognition in Scratch

**Topics:**

- Programming speech recognition in Scratch

**Aims:**

- To learn to program speech recognition with uploaded examples

**Outcomes:**

- Knowing how to write a program for speech generation using Scratch

**Work forms:**

- *work in pairs, group work*

**Methods:**

- *presentation, talk, discussion, interactive exercise*

### ARTICULATION

Course of action (duration in minutes)

#### INTRODUCTION

**Defining the goal of the lesson:**

Introduction to a speech recognition program and its usage using the example of one program.

*Ask students what is speech recognition?*

*Ask students what is SIRI and Google NOW?*

*Do they know any other Speech Recognition System?*





In recent years, speech recognition technology has grown increasingly widespread. This technology is frequently employed by companies and individuals alike because of the numerous benefits it brings. “Hey, Siri,” “OK Google,” and so on — Voice recognition, often known as speech recognition technology, is not a new concept (SRT). It refers to a type of technology that can transform spoken words into machine-readable forms. You can now communicate to your devices and have them act on your commands, very much like in science fiction tales. Because most speech recognition technologies have an accuracy rate of over 95%, it’s no wonder that latest voice search statistics reveal almost 50% of all searches in 2022 are done speaking.

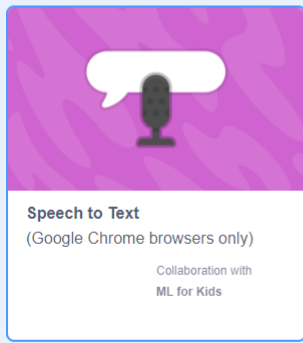
### MAIN PART

If we want to work with speech recognition, extensions are available in Scratch and Makeblock applications.

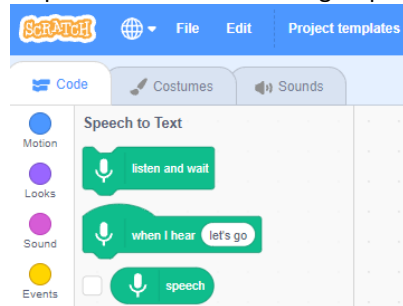
#### SCRATCH (ML4KIDS):

Step 1: Open your Chrome web browser and go to: <https://machinelearningforkids.co.uk/scratch3/>

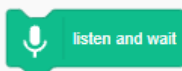
Step 2: Load extension Speech to Text



Step 3: You will see the new group in Block Palette called „ Speech to Text “and 3 new blocks there



Step 4: **Listen and wait** block starts listening and processing of spoken words

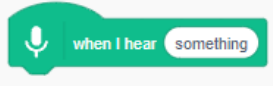


Step 5: Results of speech recognition are displayed in the speech reporter block. Check if you want the speech recognition result to be displayed on stage .

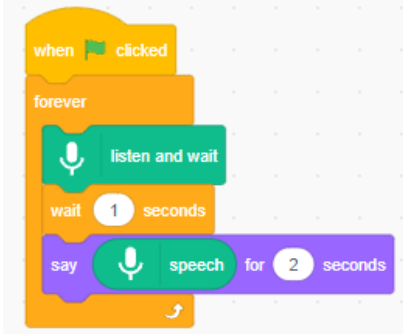




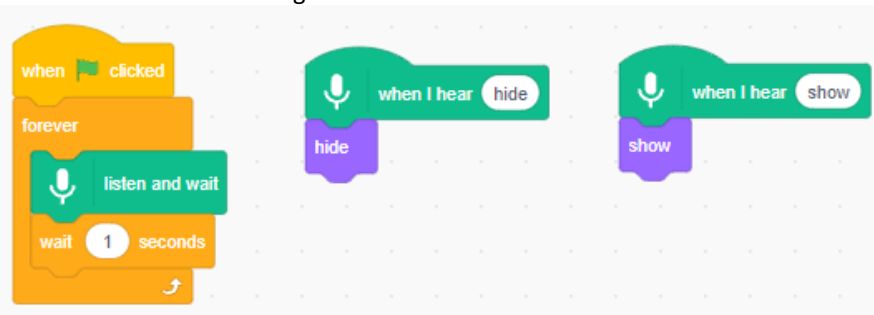
Step 6: The last block is the event trigger block. This block waits for the word in white balloon, such as „something“ in this example and then executes the sequence of blocks attached to it.



Step 7: So, let's make a simple listen and say program. All you have to do is place, listen **and wait** in a loop with **say** block to see the speech recognition in action.



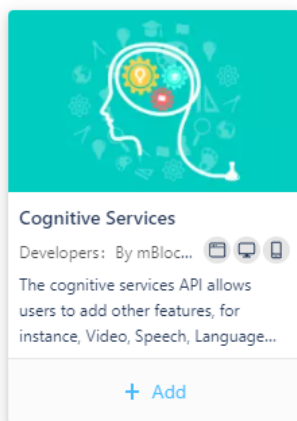
Step 8: You can also wait for a specific word(s) to trigger the event(s). Such as this hide and show game.



**MAKEBLOCK:**

Step 1a: Open your web browser and go to: <https://ide.mblock.cc/>

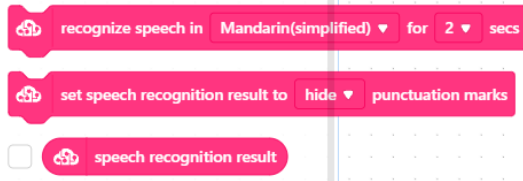
Step 2a: Load Sprite extension Cognitive Services





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development of a new curriculum, guide for educators and online course for students  
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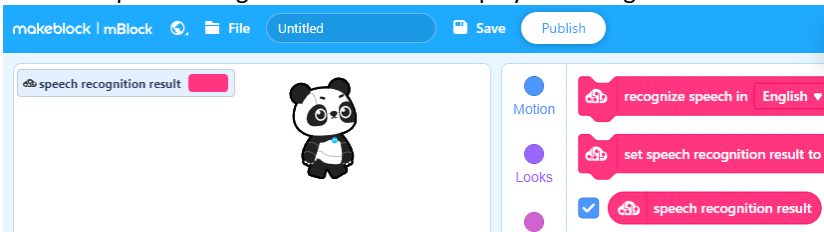
Step 3a: There are many blocks in this group but only few are related to speech recognition.



Step 4a: **Recognize speech in <language> for <x> seconds** block starts speech recognition for several seconds. RECOGNITION pop-up window will appear, and you will see a waveform when speaking.



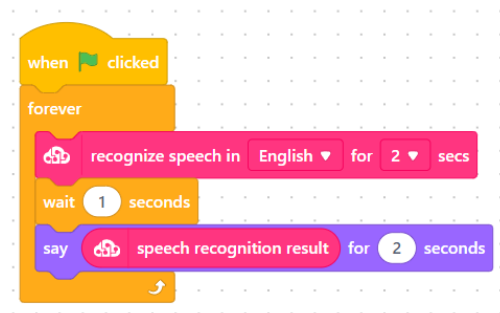
Step 5a: Results of speech recognition are displayed in the **speech recognition result** block. Check if you want the speech recognition result to be displayed on stage.



Step 6a: the last block will display or hide the punctuation marks from speech recognition result



Step 7a: So, let's make a simple listen and say program in Makeblock. You will see it's very similar to the Scratch version.



### CONCLUSION

Speech recognition technology is now a part of our daily life, although it is still confined to simple requests. Researchers will be able to develop more sophisticated systems that interpret conversational speech as technology progresses. One day, you'll be able to converse with your computer in the same manner that you would with a human, and it would respond with rational replies. Signal processing technology will make all of this feasible. The demand for professionals in this sector is increasing, and many organisations are searching for bright people to join them. Many powerful new technologies and ways of communication





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rely on processing, interpreting, and comprehending voice signals. Considering current trends, speech recognition will continue to be a fast-growing subset of signal processing in the following years..

Do the K.W.L. (**K**now, **W**ant, **L**earned) chart with your students.

What I Know	What I Want to Know	What I Learned

**Methods**

*presentation*  
*interactive exercise / simulation on the computer*

**Work forms**

*work in pairs*  
*group work*

**Material:**

- <https://machinelearningforkids.co.uk/scratch3/>
- <https://ide.mblock.cc/>

**Literature**

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PERSONAL OBSERVATIONS, COMMENTS AND NOTES

