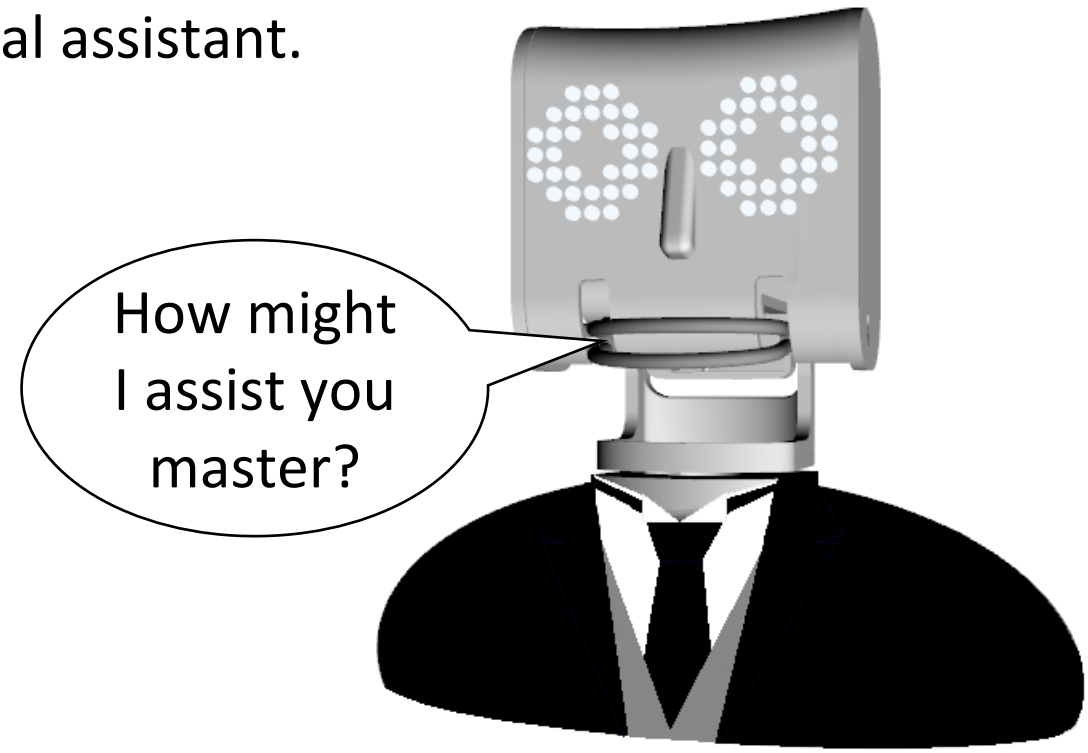
Personal Assistant

Program your
robot to be a
smart assistant

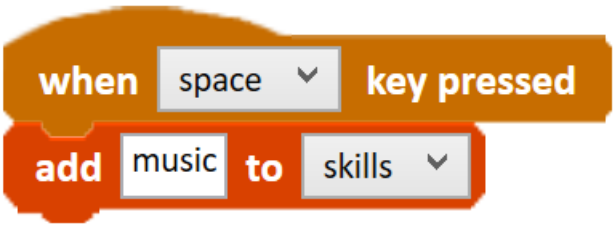
Do you have a virtual assistant in your car, on your phone or in a smart speaker at home? It feels like they are everywhere! Whether it is keeping track of your shopping list or playing your favourite radio station these bots are built to serve.

They are so multiskilled that they can seem like very sophisticated artificial intelligence. In reality humans are some way off creating strong AI and bots that seem advanced are just a collection of several weak or narrow AI programs. As an example, let's have a go at making our own virtual assistant.



To begin with, let's make a list of the different skills we want our assistant to have.

skills: time|music|weather|chat



Usually, smart speakers have the ability to do things like tell the time, play music and talk about the weather. Let's also have a chat skill so that you can converse with your robot. Use the **add to list** block to populate your skills list.

Another regular feature of smart speakers is the wake word. This is the word you say to get the speaker's attention before making your actual request.

This would be **When wakeword heard** for PicohAI

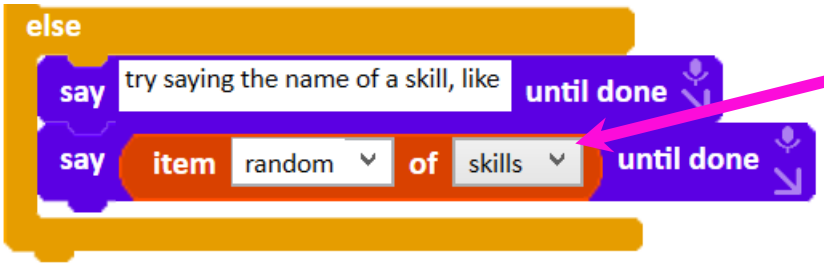
Leaving the **ask and listen** block blank means the robot won't say anything, it'll just listen

We've chosen the wake word "listen".

Once you have used the wake word, the program is listening to you and waiting for you to say the name of a skill. So say either “time”, “music”, “weather” or “chat”.

Whatever you say will be recorded as your **answer.** The variable *skill* is then set to your answer and is broadcast

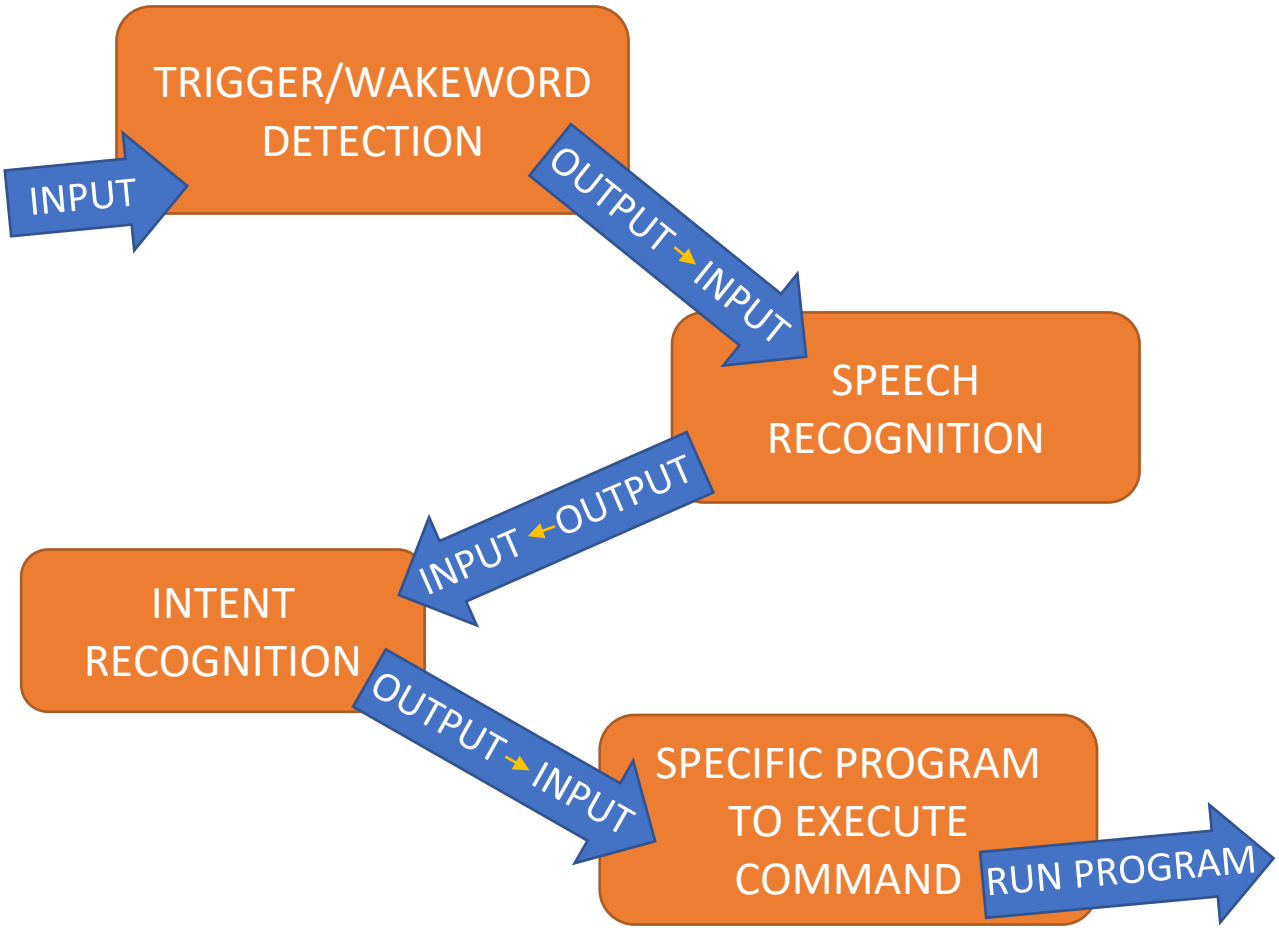
If you say something that is not on your list of skills then the program will suggest that you name a skill.



It will suggest a random skill from the list

We’ll use **multiblocks** to contain the different skills and they will be triggered when they receive the broadcast.

There are four parts to the smart speaker pipeline; wake word, speech recognition, intent recognition, run program.



Within this pipeline the first three steps are each separate examples of narrow AI. These are simple input – output systems that have been trained using machine learning for a specific job. Each step's output becomes the input of the next, until the last step, the program. For us the program is our skill contained in a **multiblock**.

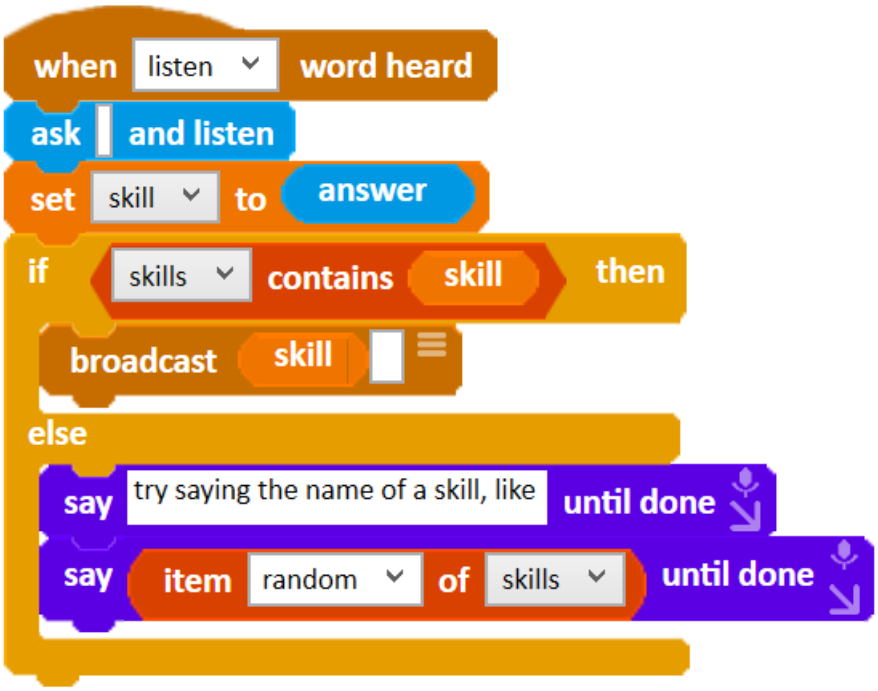
Can you see where each step of the pipeline is in our block script?

Wake word

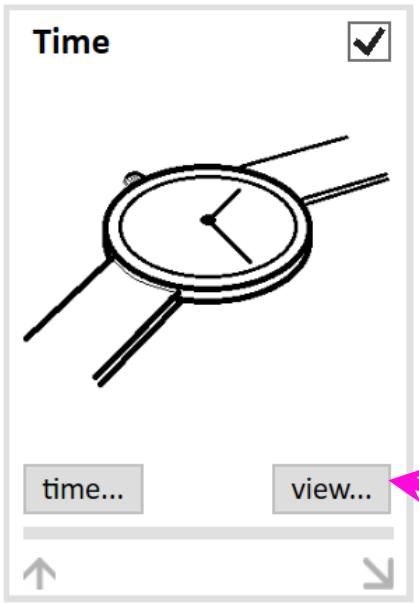
Speech recognition

Intent recognition

Run program

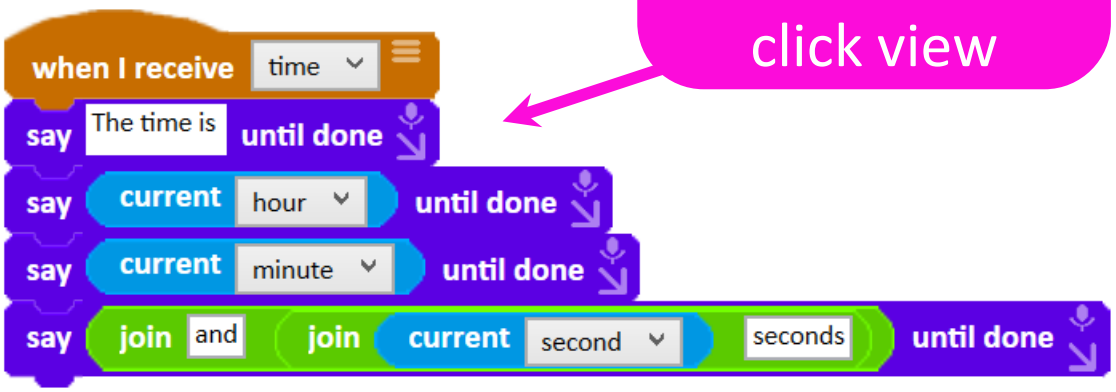


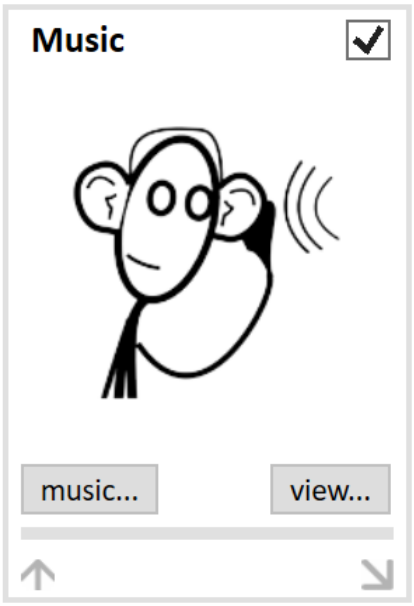
When you say “Listen…Time” the **broadcast** block will broadcast the variable *skill* which has been set to “time”.

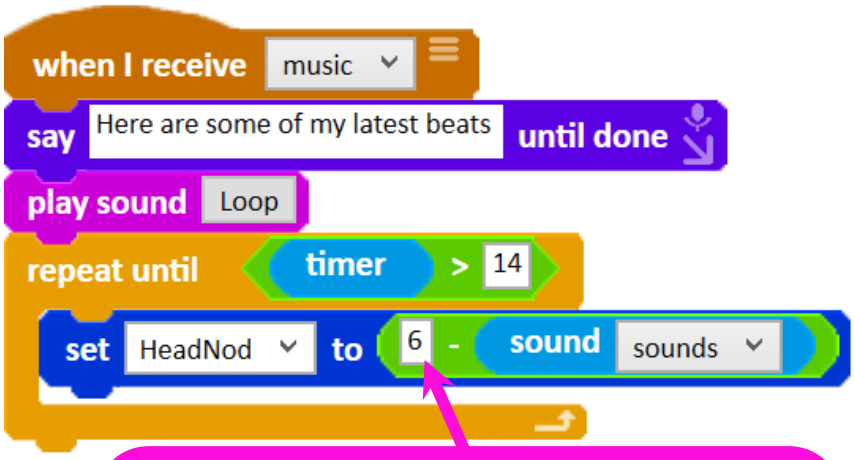


The **when I receive** block within the Time **multiblock** receives the broadcast and runs the program.

To see or change the code within the **multiblock** click view







The head will nod to the sounds of the music. Try changing this number to see how it affects things

Click help on **weather** to find out more

Already our virtual assistant is starting to appear quite intelligent. It reacts to a wake word, it can tell you the time or what the weather is like. Can you see how if you kept adding these simple skills together you'd have something that is greater than the sum of it's parts?

To find out how to add the chat skill or another of your own design, continue on to the second part of this resource.