## Ohbot AI

Artificial Intelligence performs tasks that normally require a human. There are many methods of artificial intelligence.

Face recognition and speech

In the simplest form an Ohbot program can use a sensor to read the light levels around it or use a **camera movement sensor** block to measure the amount of movement in its field of view and behave differently according to what is sensed.
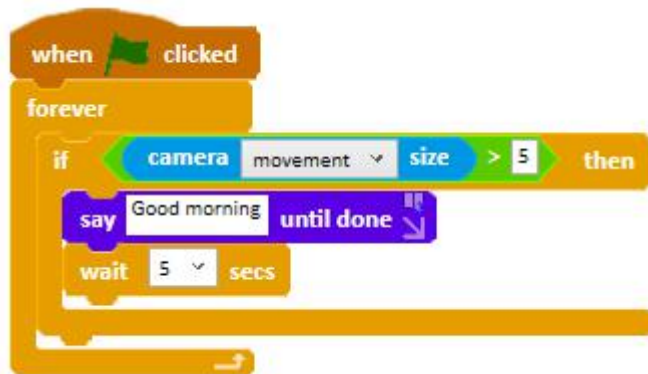
This program does nothing until someone is "seen" through Ohbot's camera. It mimics one of the behaviours of a security guard or receptionist.

This program will not distinguish between a human and an animal. If a dog walks into Ohbot's field of view then Ohbot will say "Good morning" to the dog – this is not very intelligent!

We can use a face sensor to tell the difference. The **camera face sensor** block uses an algorithm that has been trained with machine learning to recognize what a face looks like.
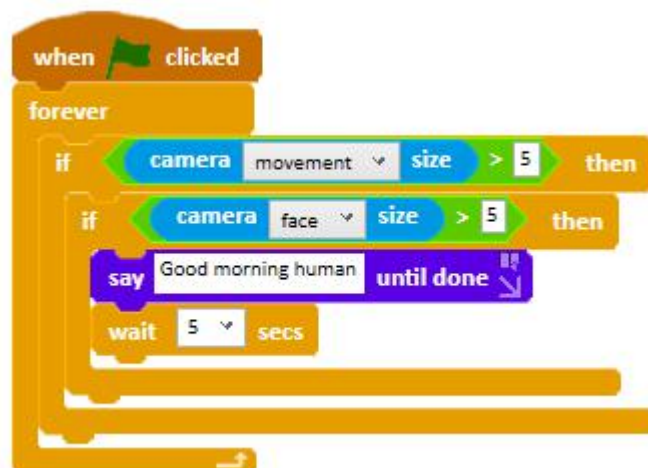

In these two examples you have made Ohbot speak by using the **say** block that converts written text into speech.

The text to speech block uses an algorithm that has been trained in how to pronounce different words. For example, the word thought and the word through both contain the letter sequence o u g h. In English this letter sequence is pronounced to rhyme with "or" or "oo" depending on the other letters in the word.

Intelligent face movements

The Ohbot app provides a whole set of programming tools which can be used to create your own intelligent programs.

You can incorporate sensor values for date and time and also use **random**. For example, the following programming blocks make an Ohbot or Picoh blink in a human-like way:
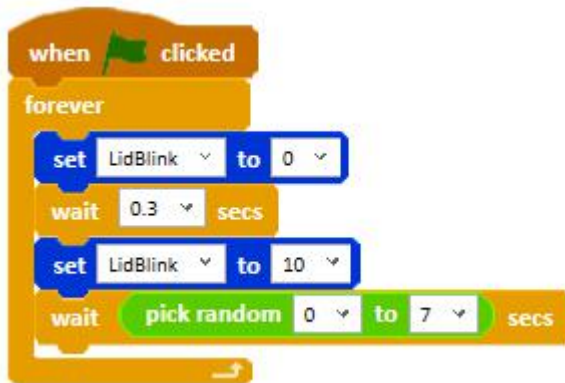
A human doesn't blink regularly so this block sets a random time between blinks of between 0 and 7 seconds.

Similarly, for date and time, we can program intelligent responses:

Speech recognition

The **when word heard** block in the app uses an algorithm that has been trained by machine learning to recognise words spoken into the microphone. (Note this is not available in all languages).


Similarly, the same speech recognition service can be used to convert any spoken phrases into text. We can use our own programming to make intelligent decisions based on what is spoken. (Note this is not available in all languages and requires an internet connection and correct permissions in Windows).

External AI resources

We can also make use of the **webservice sensor** to access external web services that provide artificially intelligent responses. We provide built-in services for Wikipedia, Wolfram Alpha, and Datamuse. For example, we can retrieve rhymes for words:
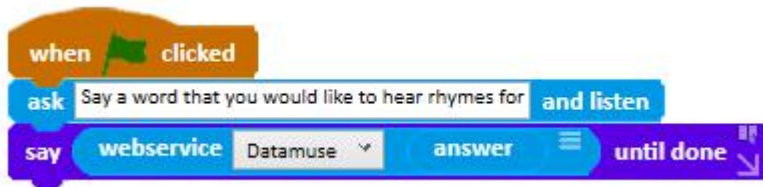
(Note that the Datamuse webservice works in English and that Wolfram Alpha requires creation of an account).

The **webservice sensor** block can be configured to use other web services.