

# What do the blocks do?



## Setup

### Program Start

Every program you make should start with this block. It sets up your Python script and ensures that your program finishes correctly.

### Periodic Control Loop

do

Use this block as your outer loop if you want to build a 'periodic' controller. The code inside this block will be run ten times a second.



## Simple Motion

### Raise/Lower Head **Raise** ▾

This block raises or lowers MiRo's head.

### Look Up/Down **Up** ▾

This block tilts MiRo's head up or down (for example, to create a nodding motion).

### Look Left/Right **Left** ▾

This block turns MiRo's head left or right.

### Look Left/Right **Left** ▾

This block starts MiRo moving forwards or backwards at the desired speed.

### Start Moving **Forwards** ▾ **Slow** ▾

This block stops MiRo moving forwards or backwards.

### Start Turning **Left** ▾ **Slow** ▾

This block makes MiRo start turning its body left or right at the desired speed.

### Stop Turning

This block stops MiRo turning its body.

### Move **Left** ▾ Ear(s) to face **Forwards** ▾

This moves the selected ear(s) to the desired position.

Move **Left** Eyelid(s) to **Open**

This moves the selected eyelid(s) to the desired position.

Point Tail **Left**

This moves MiRo's tail to the desired position (Left/Right).

Droop Tail **Up**

This lifts MiRo's tail to the desired position (Up/Down).

Wag Tail **Slow** for **3** Seconds

This will move MiRo's tail from side to side (in a wagging motion) at the desired speed for the specified duration of time.



## Complex Motion

Move Neck Lift To **35** degrees

Move Neck Lift=This block adjusts MiRo's neck lift to any angle (from 5 to 60 degrees - the default is 35 degrees).

Move Neck Pitch To **0** degrees

Move Neck Pitch=This block adjusts MiRo's neck pitch (nodding) to any angle (from 8 to -22 degrees - the default is 0 degrees).

Move Neck Yaw To **0** degrees

Move Neck Yaw=This block adjusts MiRo's neck yaw (head turning) to any angle (from -60 to 60 degrees - negative values turn the head to the right).

Set Forward Speed to **0.1** meters per second

Set Forward Speed=This block starts MiRo moving at the specified speed (negative speeds will move MiRo backwards, the maximum values are -0.4 m/s and 0.4 m/s).

Set Turn Speed to **25** degrees per second

Set Turn Speed=This block starts MiRo's body turning at the specified speed (from -280 to 280 degrees/sec - negative values turn MiRo's body to the right).



## Sensors

### Sonar Range

Sonar Range=This block returns the distance in metres between MiRo's nose and the object/obstacle in front of it - a value of 0.0 means that no obstacle was detected. Detected obstacles will lie in the range 0.03 to 1.00 metres.

### Left Cliff Sensor

Cliff Sensor=This block returns true or false (boolean) where true means a 'cliff' is detected.

### Both Cliff Sensors

Both Cliff Sensors=This returns a list containing the raw cliff sensor values as [left, right]. Each value is between 0.0 and 1.0 and indicates the confidence that a surface is present - 1.0 means there is certainly a surface, and 0.0 means that there is certainly a cliff.

### clap detected in previous 2 seconds

Clap Detected in Previous X Seconds=Returns True if a clap has been detected within the entered seconds prior to the blocks execution

### seconds since clap

Seconds Since Clap=Return the number of seconds since a clap has been detected as a float. Returns 60.0 if no clap has been detected.

### Wait for clap

Prevents the code from progressing until a clap is detected.

### Body Touch sensors

Body Touch Sensors=This block returns the state of the body touch sensors.

### Head Touch Sensors

Head Touch Sensors=This block returns the state of the head touch sensors.



## Sound & Light

### Play tone of 500 Hz for 0.5 seconds at volume 100

This block will play a tone at the specified frequency (200Hz - 2000Hz), volume (0 - 255) and duration in seconds.

### Change Front LED on Left side to Bright

This will set the colour and brightness of the specified LED(s).