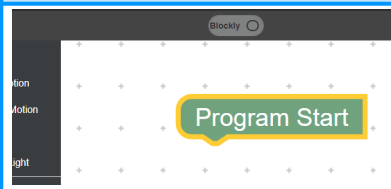
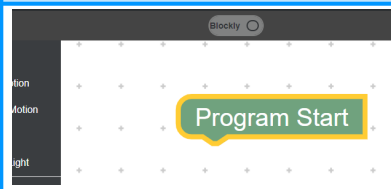
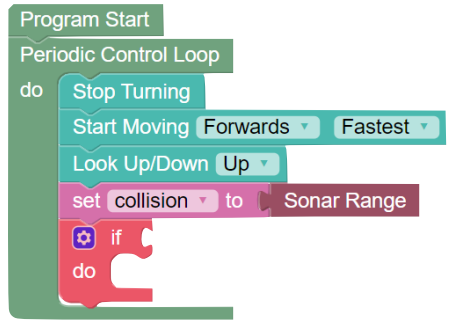
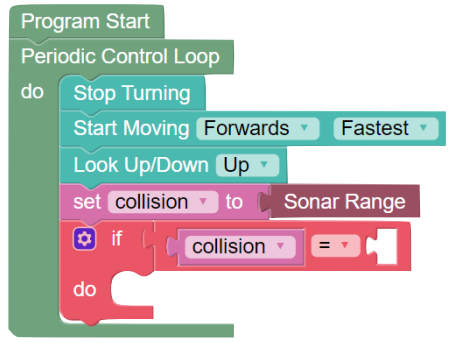
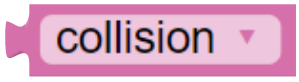
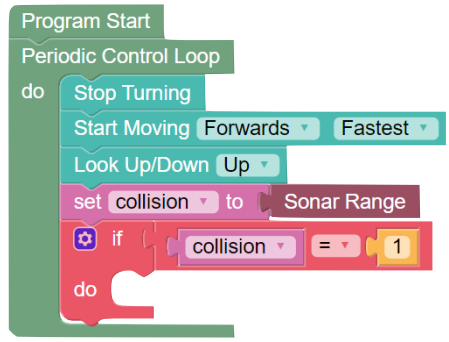
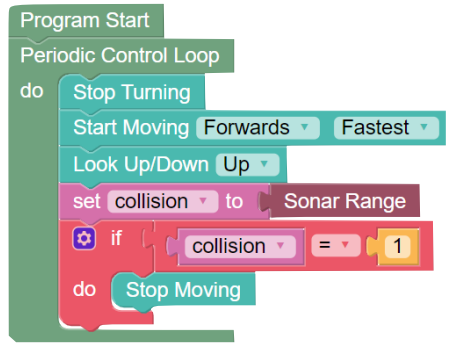
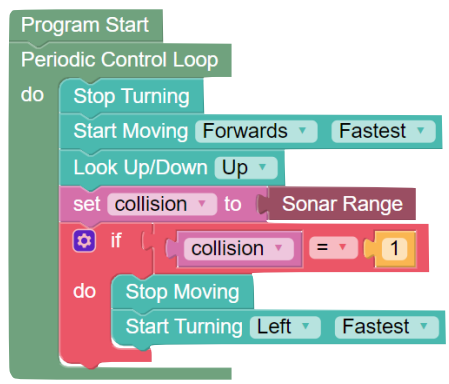
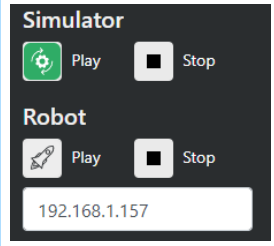
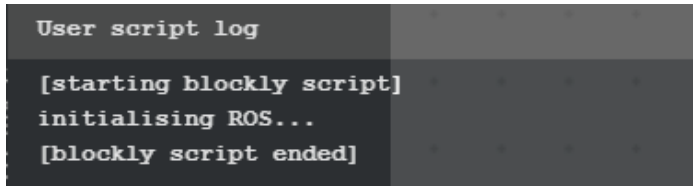
PART 1 Step-by-Step - Use MiRo simulator to output the range detected by the Sonar Range Sensor.

	Step	Block	Category	Image
1	Add 1 x **Program Start** block	Program Start	Setup	
2	Add 1 x **Periodic Control Loop** block	Periodic Control Loop do	Setup	Program Start Periodic Control Loop do
3	Add 1 x **Move Forwards** block	Start Moving Forwards Slow	Simple Motion	Program Start Periodic Control Loop do Start Moving Forwards Slow
	Change speed from slow to fastest.			
4	Add 1 x **Set Item** block	set item to	Variables	Program Start Periodic Control Loop do Start Moving Forwards Fastest set item to
5	Add 1 x **Sonar Range** block	Sonar Range	Sensors	Program Start Periodic Control Loop do Start Moving Forwards Fastest set item to Sonar Range
6	Add 1 x **Run Code** block	Run code #Enter your own python	Code	Program Start Periodic Control Loop do Start Moving Forwards Fastest set item to Sonar Range Run code print (item)
	Change text to '*print (item)*'			
7	Click **Simulator Play**			Simulator Play Stop
	Follow a Program Script at bottom of screen shows code running and the initial values of the sonar range is output each time MiRo moves.			User script log 0.336808651686 1.0 1.0 1.0 1.0 When the Sonar Range detects an object, observe how the sensor is now outputting a '1.0'

PART 2 Step-by-Step - Simulate MiRo to move around and stay within the area given.

	Step	Block	Category	Image
1	Add 1 x **Program Start** block	Program Start	Setup	
2	Add 1 x **Periodic Control Loop** block	Periodic Control Loop do	Setup	Program Start Periodic Control Loop do
3	Add 1 x **Stop Turning** block	Stop Turning	Simple Motion	Program Start Periodic Control Loop do Stop Turning
4	Add 1 x **Move Forwards** block	Start Moving Forwards Slow	Simple Motion	Program Start Periodic Control Loop do Stop Turning Start Moving Forwards Fastest
	Change speed from slow to fastest.			
5	Add 1 x **Look Up/ Down** block	Look Up/Down Up	Simple Motion	Program Start Periodic Control Loop do Stop Turning Start Moving Forwards Fastest Look Up/Down Up
6	Add 1 x **Set Item** block	set item to	Variables	Program Start Periodic Control Loop do Stop Turning Start Moving Forwards Fastest Look Up/Down Up set item to item Rename variable... New variable...
	Rename the variable to ‘collision’ by: Click the arrow next to the word ‘item’ Select ‘rename variable’ Rename variable to: ‘collision’			
7	Add 1 x **Sonar Range** block	Sonar Range	Sensors	Program Start Periodic Control Loop do Stop Turning Start Moving Forwards Fastest Look Up/Down Up set collision to Sonar Range

	Step	Block	Category	Image
8	Add 1 x **If Do** block		Logic	
2	Add 1 x **Equals** block		Logic	
3	Add 1 x **Collision** block		Variables	
4	Add 1 x **Maths '0'** block		Math	
	Change from '0' to '1'			
5	Add 1 x **Stop Moving** block		Simple Motion	
6	Add 1 x **Set Item** block		Simple Motion	
	Change speed from slow to fastest			

Step	Block	Category	Image
7	Click **Robot** OR **Simulator Play**		
8	**Follow a Program** Script at bottom of screen shows code is ready and waiting for the 'clap'		 The clap button or a physical clap will need to be heard by MiRo at the appropriate time for the program to proceed. The script at the bottom will show the program has ended.

Extension

Click the button above the block code with the word 'Blockly' on it and switch the screen to 'python'. Can you narrate anything that happens in the code?