

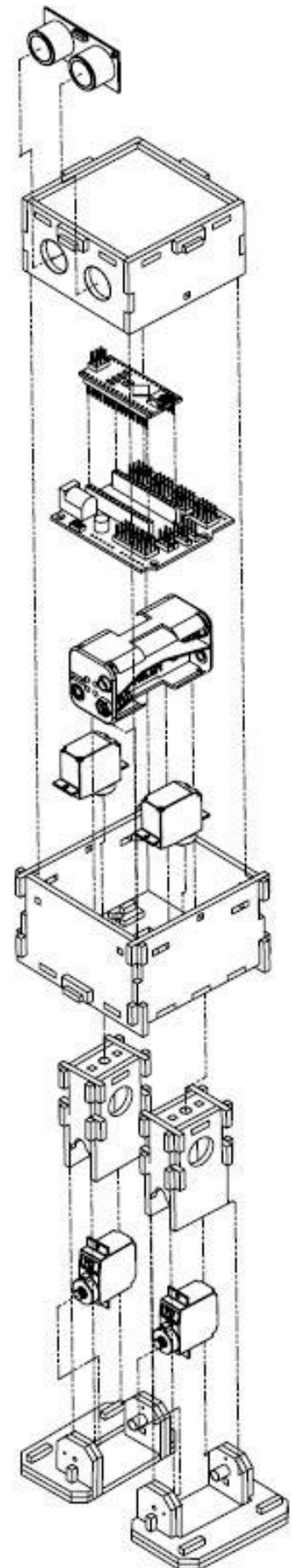
MIIA ASSEMBLY INSTRUCTIONS

WELCOME

Congratulations! You are now the proud new owner of your own MiiA robot. These instructions will take you through everything you need to know on how MiiA is put together and what makes her tick. MiiA is built in the form of a 3D puzzle, so the fun begins immediately. So without further ado, let's jump in!


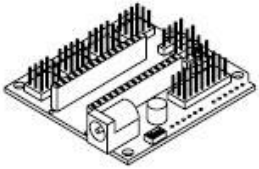
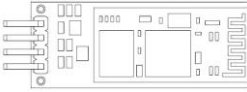
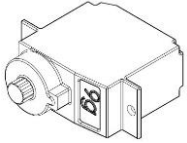
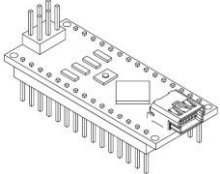
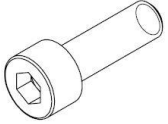


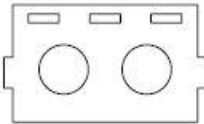
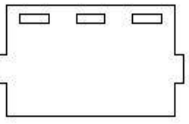
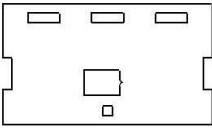
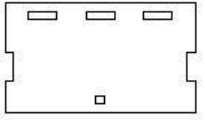
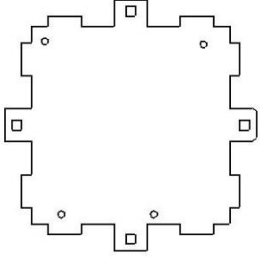
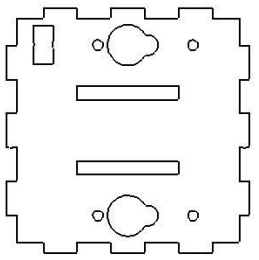
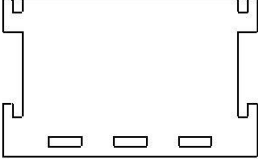
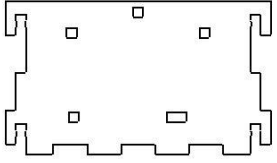
Contents

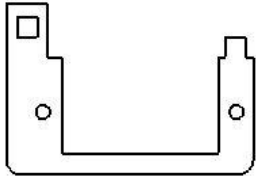
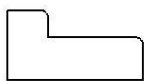
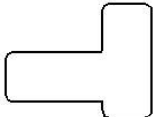



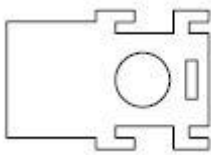
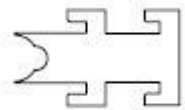

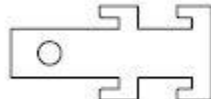

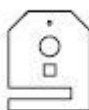
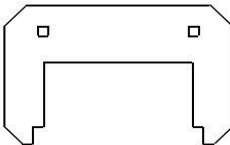


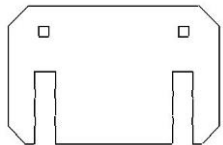


What's in the Box.....	1
Putting MiiA Together.....	3
Head	3
Body	4
Legs	7
Feet	8
Motor Calibration	10
Assembly	11
Electrical Connections.....	14
Final Assembly	15



What's in the Box

All parts included in the kit are shown in this section.

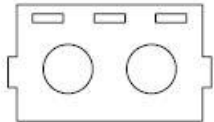
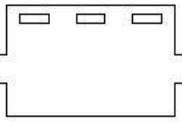
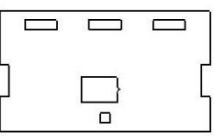
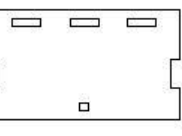

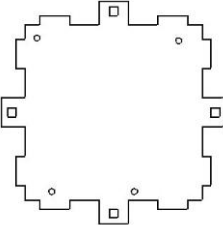
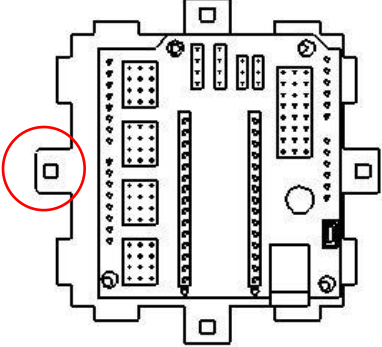
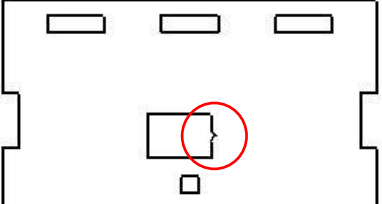
Part	Preview	Part	Preview
Battery holder (1x)		Arduino shield (1x)	
HC06 Bluetooth transceiver (1x)		Servo Motor (4x)	
Arduino Nano (1x)		M2 cap screw (8x)	
Ultrasonic sensor (1x)		M2 nut (8x)	
Head – front (1x)		Head - back (1x)	
Head - left (1x)		Head-right (1x)	
Head - top (1x)		Body - base (1x)	
Body - front and back (2x)		Body - sides (2x)	

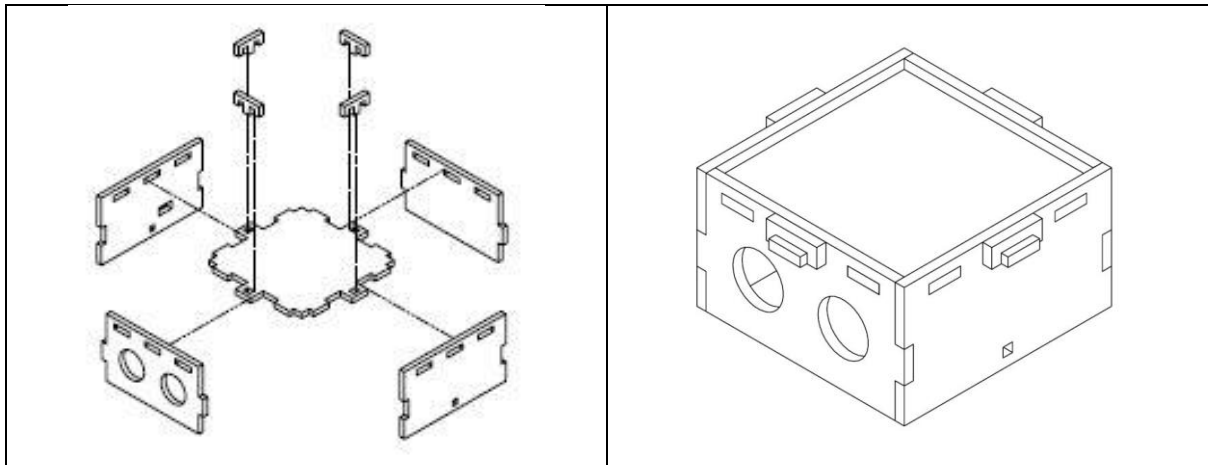
Motor mounts (x4) Note: 2 are spares		Body side pins (2x)	
General pin (18x)		Head and body pin (4x)	
Leg - bottom plate (2x)		Leg - top (2x)	
Leg - sides (4x)		Leg - front (2x)	
Foot - back (2x)		Leg - back (2x)	
Foot - front (2x)		Foot - back (2x)	
Foot - top (2x)		Foot - front (2x)	
USB mini cable (1x)		Foot - base (2x)	
Server washer screw (8x) 4 spare		Foot - axle (2x)	

Putting MiiA Together

This section describes how to assemble the individual parts that make up MiiA.

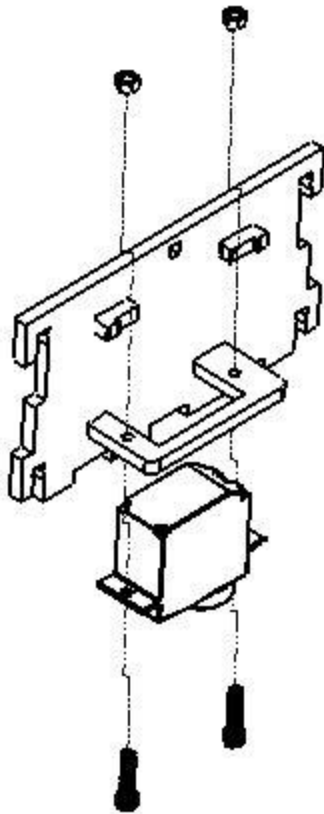
Head

Part	Preview	Part	Preview
Head – front (1x)		Head - back (1x)	
Head - left (1x)		Head - right (1x)	
Head and body pin (4x)		Head - top (1x)	
How to assemble			
		<p>Note: For ease of assembly first fix the shield the top of the head plate. Also note that the front of the plate will be the key with the rounded edges.</p>	
		<p>Note: Corner arrow should be facing the front of the robot.</p>	

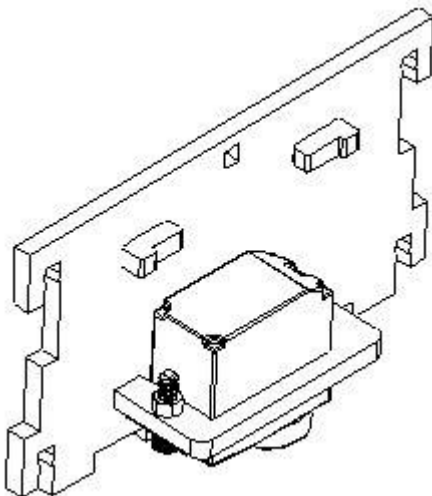


Body

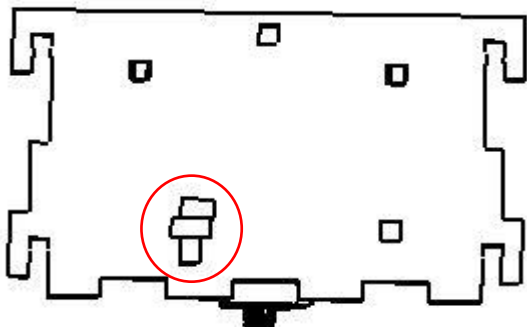
Part	Preview	Part	Preview
Body - front and back (2x)		Body – sides (2x)	
Body - base (1x)		Motor base (2x)	
Body side pins (2x)		General pin (6x)	
How to assemble			



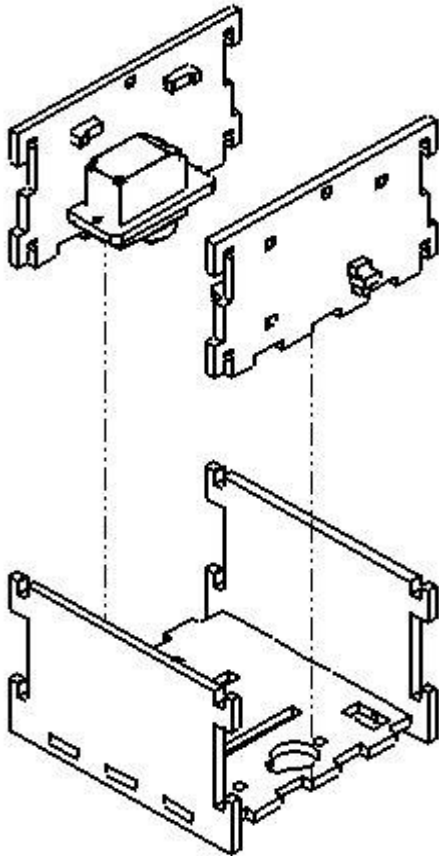
Note: First insert motor mount as shown. Input motors from the bottom of the mount. Screw in caps crew from the bottom with the nuts on top.



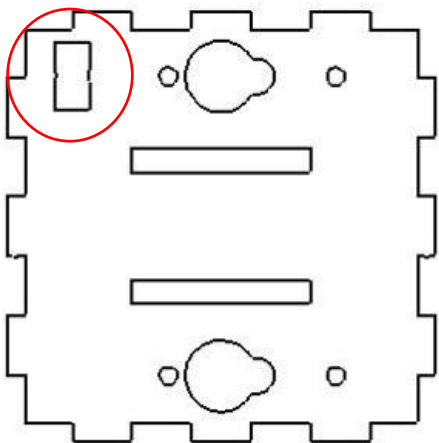
Note: Insert the general pins as shown. Ensure screws are screwed in upside down



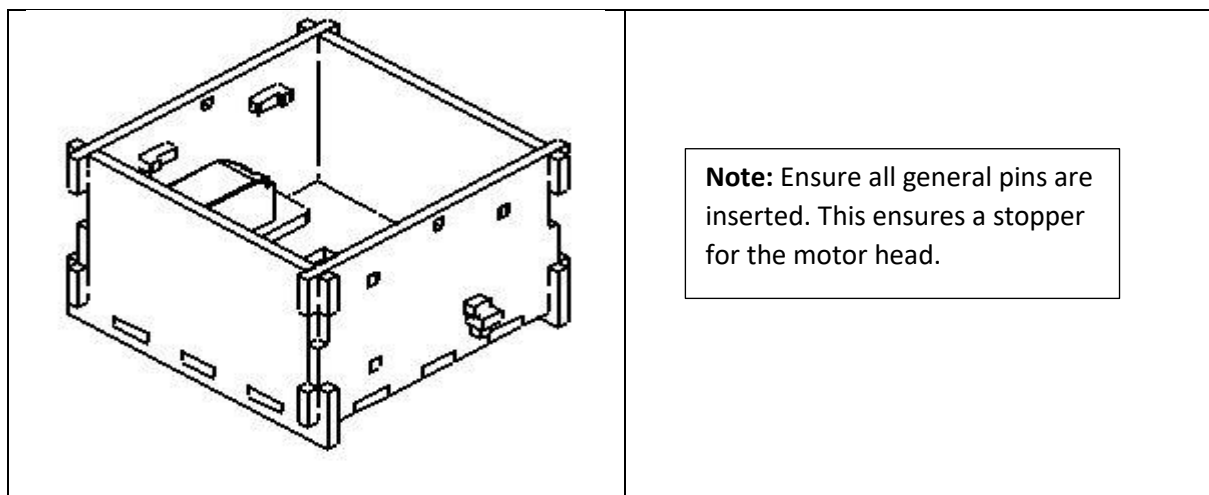
Note: Put straight pins into the motor mounts to fix it into place. Repeat this process for the second motor. Ensure the motors are mounted in relation to the base.





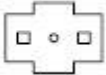
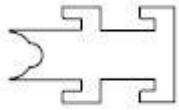
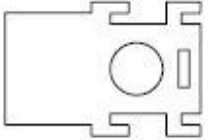
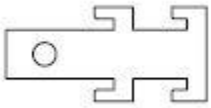
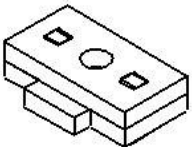
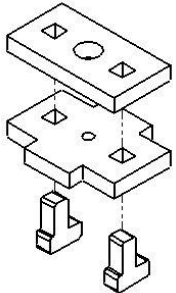
Note: Fit the front and back of the body and slide the motors down into place as shown.

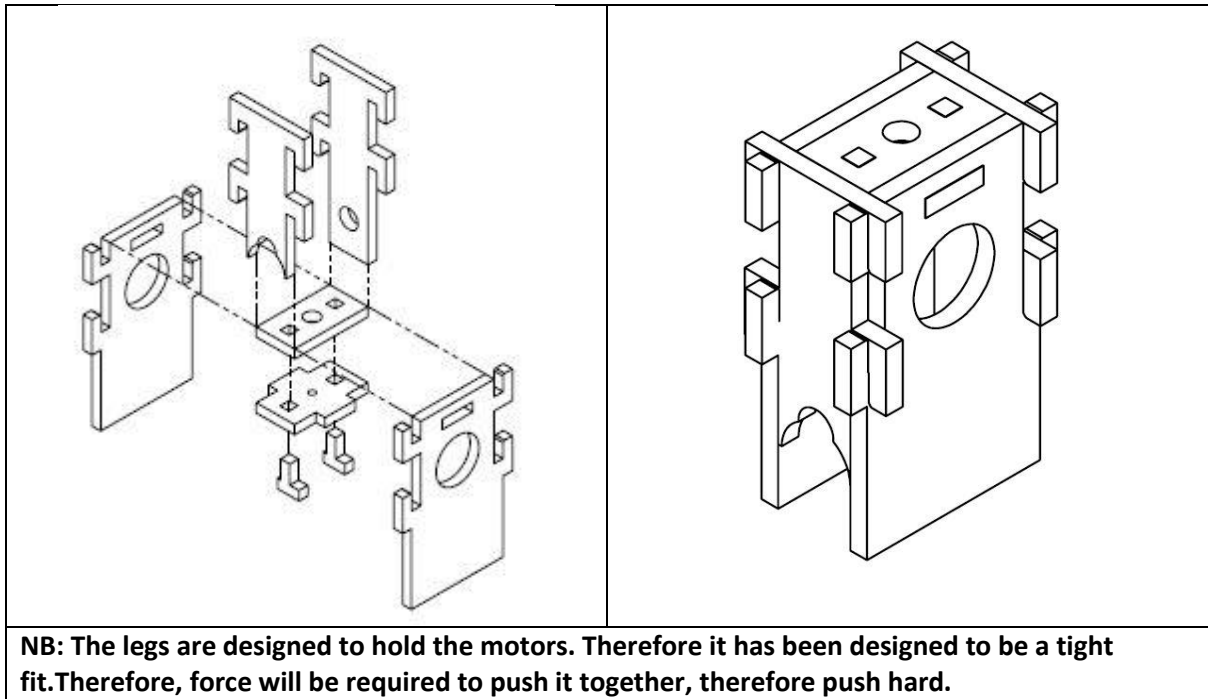


Note: When inserting the electronics. Insert switch here. This is designed to be tight. So some force may be required. This can be done at a later stage when fitting the electronics.



Legs

Part	Preview	Part	Preview
General pin (4x)		Leg - top (2x)	
Leg - bottom plate (2x)		Leg - front (2x)	
Leg - sides (4x)		Leg - back (2x)	
How to assemble			
		<p>Note: For ease of assembly first attach the top plate.</p>	
		<p>Note: Assemble by putting general pins together as shown.</p>	

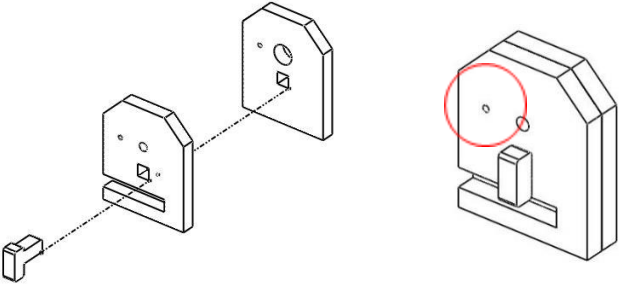
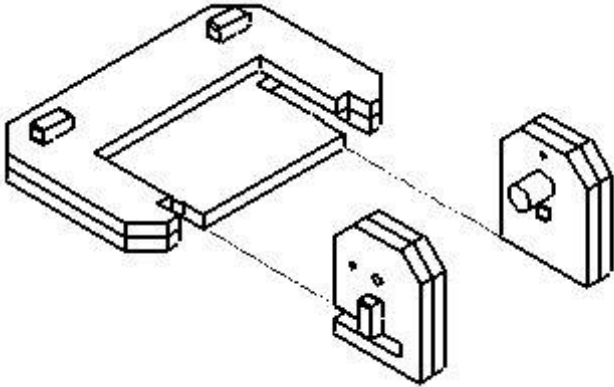
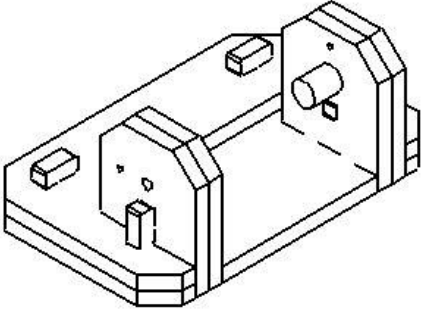
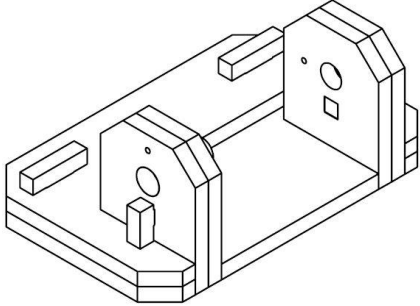
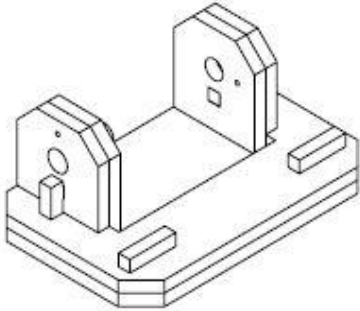


Feet

Part	Preview	Part	Preview
Foot - back (2x)		Foot - back (2x)	
Foot - front (2x)		Foot - front (2x)	
Foot - top (2x)		Foot - base (2x)	
General pin (4x)		Foot - axle (2x)	

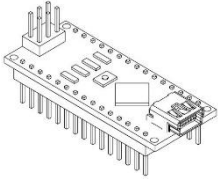
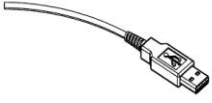
How to assemble

Note: First insert the plate and hook hinge as shown. NB two parts must have a matching dot as shown.

	<p>Note: Insert the hinge for the other side. Special care should be taken to ensure the small hole is at the outer most position. Take note of the location dot.</p>
	<p>Note: Slide the two hinges into place. Although indicated at this stage. Do not insert axil. This will be done when you fit the motor into place.</p>
	<p>Note: fully assembled foot. When assembling the other foot ensure the orientation as shown in the images below.</p>
 <p>Left foot</p>	 <p>Right Foot</p>

Flashing the Arduino program

This section deals with the download and install of the Arduino program.

Part	Preview	Part	Preview
Arduino Nano (1x)		USB mini cable (1x)	

Step one

Download the Arduino IDE [here](#). This is the program that is used to load the program onto the Arduino Nano microcontroller. Once installed go to step two

Step two

Download the firmware called LOFI_MiiA_firmware.ino from the RD9 Solutions website [here](#). Download the code and open it into the Arduino IDE. Plug in the Arduino and proceed to the next step.

Step three

Once the code is open, upload the code to the Arduino microcontroller. The details on how to do this can be found [here](#).

Step four

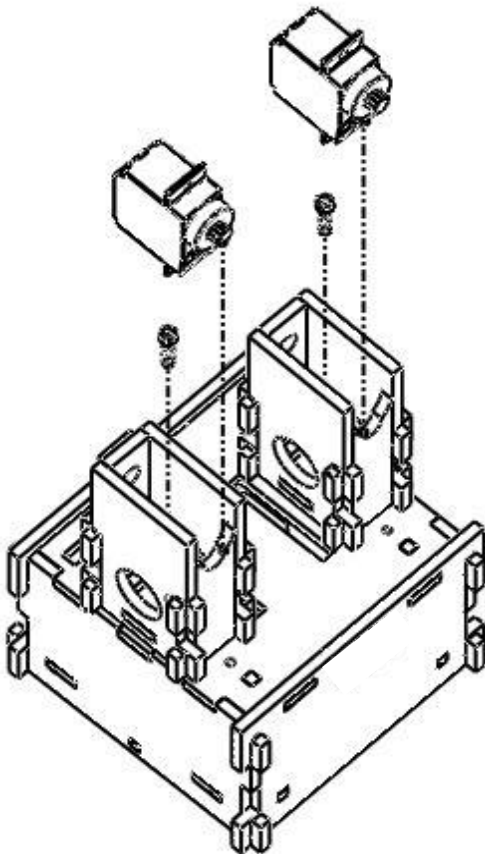
The code should be uploaded and ready to be used.

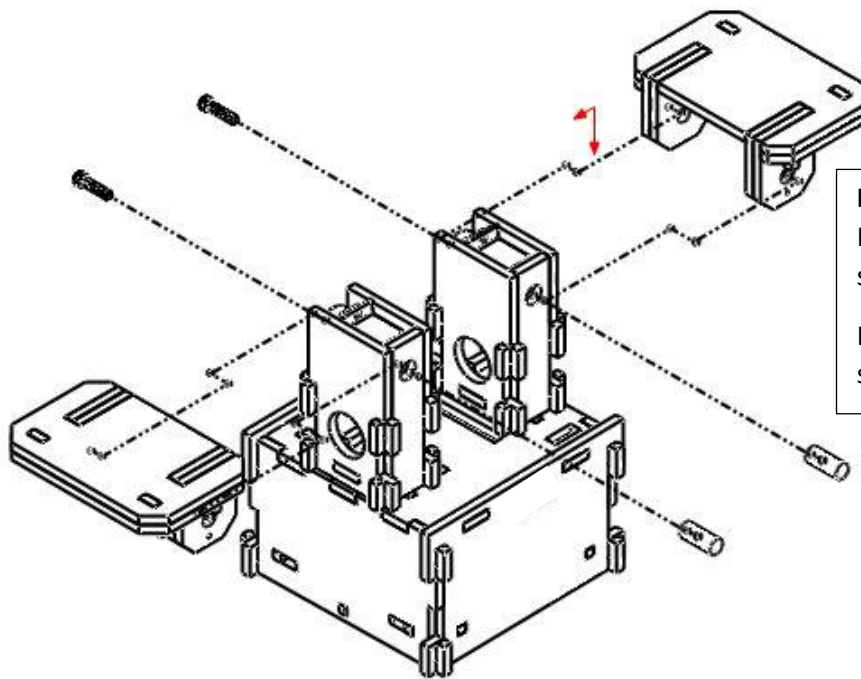
Motor Calibration

When inserting motors into the robot, please ensure that the servo motors have been set to 90 degrees. Plug in the Arduino into the shield and power the board by switching the switch. Once the code has been uploaded Pin A0 will set the motors to 90 degrees. While the board is powered plug each motor into A0 to calibrate it. Once calibrated you can join the legs and feet to the motor.

Assembly

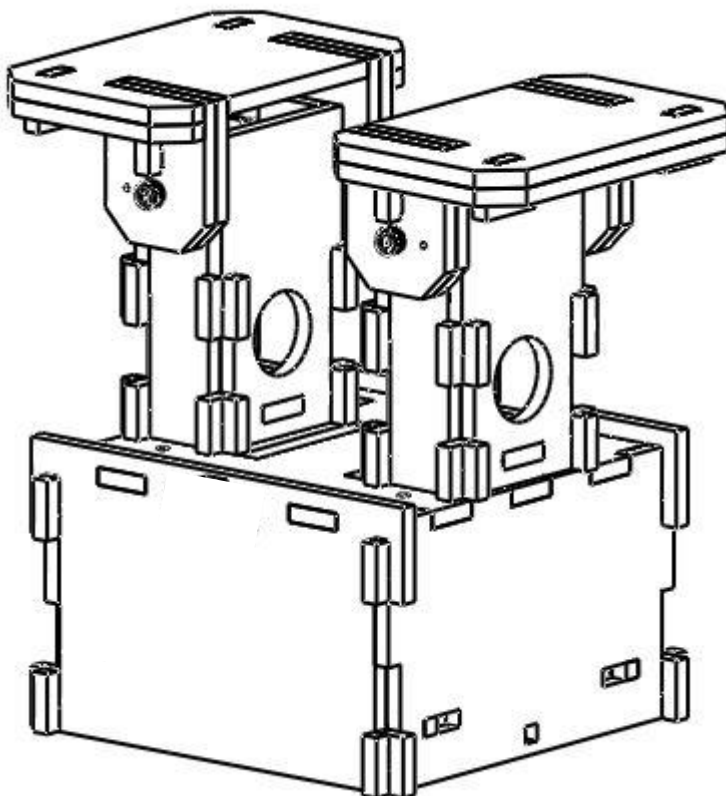
This section shows how to install the motors that make MiiA move.

Description	Assembly Instruction
Motor plate assembly	
 <p>Important: Use washer screw obtained in servo packs to screw in legs to the motor as shown</p>	
Feet assembly	



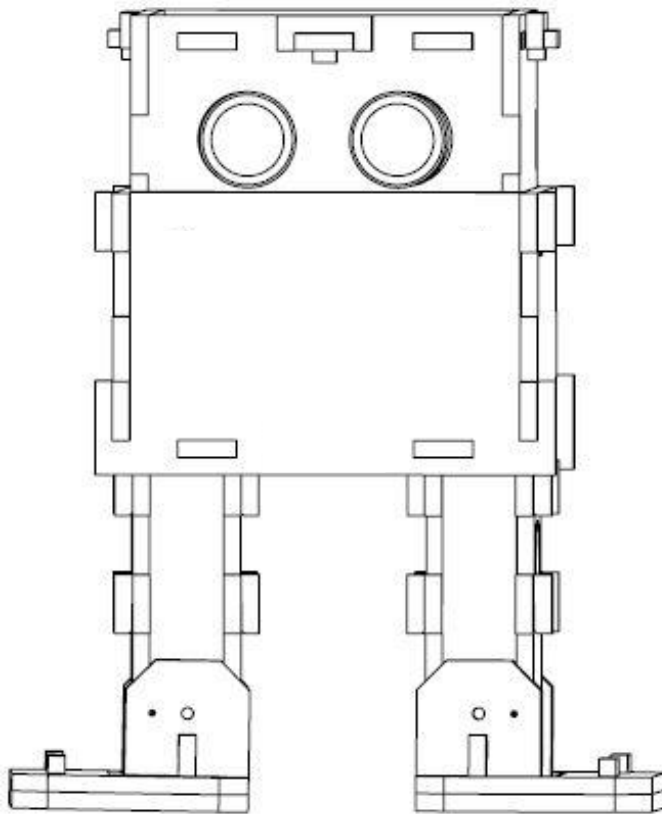
Note: Fit feet into motor shafts.
 Note this is designed to be tight
 so therefore use adequate force.
 Insert axils and screws at this
 stage.

Complete bottom body assembly



Note: Ensure all joints are fixed
 and that there is no slippage by
 moving each joint. If the motor
 gears are heard then it has been
 adequately fixed.

Fully assembled view

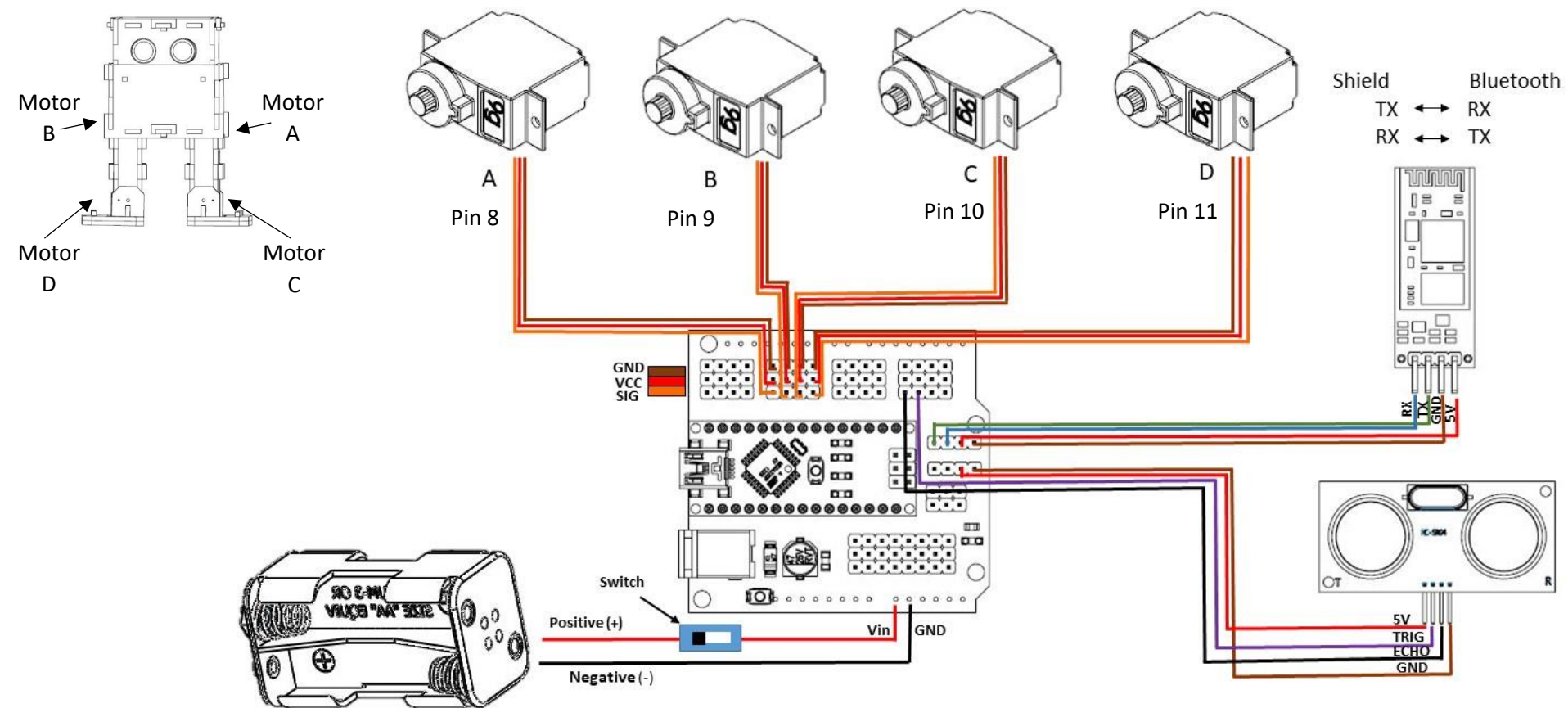


Note:

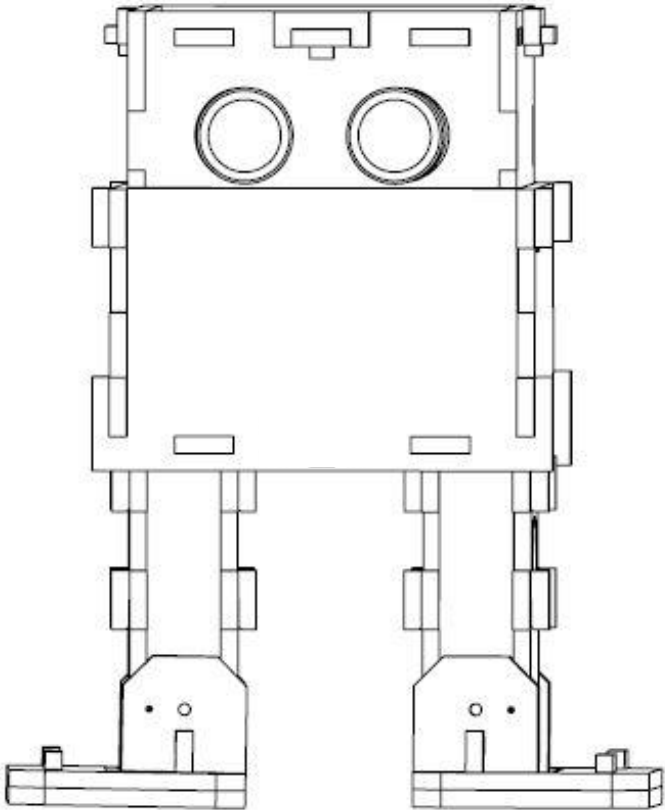
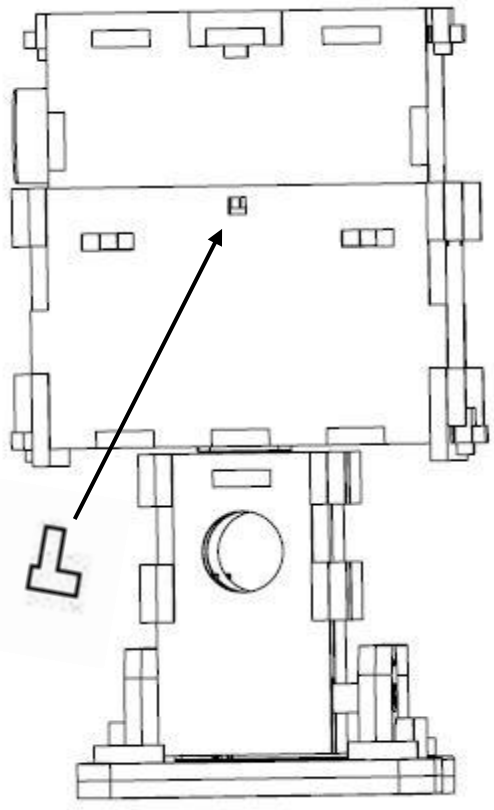
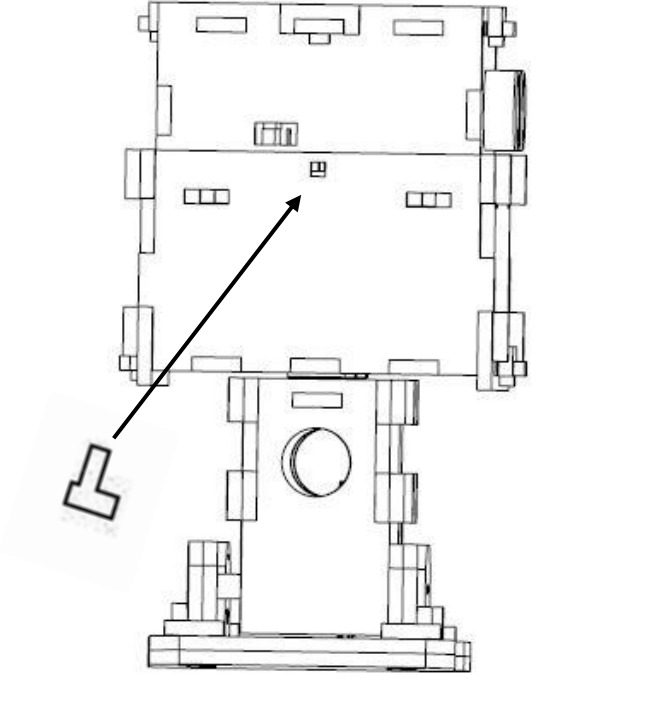
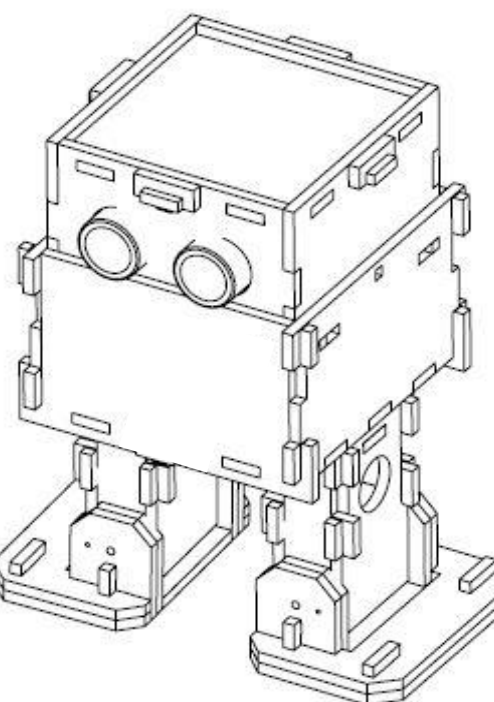
This is how MiiA will look fully assembled.

Electrical Connections

By connecting all the electrical component as shown below, MiiA will be able to be programmed and controlled to move.



Final Assembly

Front View and Left View	Right View and Isometric View
 <p>This technical drawing shows the front and left views of a mechanical assembly. The front view (top) features a rectangular upper section with two circular openings and a lower section with two vertical supports. The left view (bottom) shows the side profile of the assembly, highlighting the internal structure and the placement of various components.</p>	 <p>This technical drawing shows the right and isometric views of the same mechanical assembly. The right view (top) shows the side profile from the opposite side, with an arrow indicating a specific feature. The isometric view (bottom) provides a 3D perspective of the entire assembly, showing the relative positions of all components.</p>
 <p>This technical drawing shows the front and left views of the mechanical assembly, identical to the top-left panel. It illustrates the front elevation with two circular features and the left elevation showing the side profile and internal structure.</p>	 <p>This technical drawing shows the right and isometric views of the mechanical assembly, identical to the top-right panel. It includes the right elevation with an arrow pointing to a feature and the isometric view showing the 3D structure of the assembly.</p>

Well Done! MiiA is now complete and ready to be programmed.

To start your robotics journey please go to our [website](#) for instructions on getting started with programming her.

If you are having any issues with the kits, please do not hesitate to contact us at info@rd-9.co.za

