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CODLAI
TECHNOLOGIES

ARMBOT
INSTALLATION GUIDE

"ROBOTIC CODING FOR EVERYONE"

ArmBot Installation Guide

2025 (v2.0)

Contents

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Who Are We?

CODLAI TECHNOLOGIES INC.

CODLAI Technology Inc. was founded during the pandemic, when the challenges and shortcomings of distance learning became apparent. During this period, it was observed that the existing infrastructure, particularly in robotics coding and similar practical courses, was inadequate, leading to significant decreases in productivity. To address these issues, in 2021, one of our founders and a graduate student, Samed Kaya, completed his thesis titled "Internet-Oriented Sensor Board Design and Production for Intermediate and Advanced Robotics Coding Education." This work laid the foundation for the CODROB brand and our first products, the IoTBot and sensor modules.

The resulting products have attracted attention with their innovative features as well as eliminating the deficiencies in the market. In 2022, with the partnership of Kule Mold Machinery and Industry INC. located in Gebze/Kocaeli, CODROB has gained wider opportunities and developed new generation programmable robots, advanced program called "CODROB Editor" and web platform.

The CODROB Project, awarded the "Seal of Excellence" in the first call of the 2025 TÜBİTAK 1812 (BIGG) Program, began its R&D and commercial activities under the name **"CODLAI TECHNOLOGY INC."** The company operates in the Teknopark Istanbul area.

CODLAI currently offers a wide range of products, including three different programmable IoT-based motherboards, more than 20 sensor modules, programmable cars, robotic arms, and drones. Furthermore, it aims to meet all needs in the field with its next-generation AI-powered products, coding editor, and training curriculum. Curricula and sample projects appropriate to the learning level have been created for all devices produced.

Our Future Vision

As CODLAI, we aim to focus on innovative topics such as new programmable motherboards, developable robots for robotics competitions, and robotic coding via virtual reality in the future. Our aim is to provide pioneering and innovative solutions in educational technologies and to ensure that students and educators have the best experience.

Our Mission

As CODLAI Technologies Inc., our mission is to provide innovative, accessible and effective solutions to students and educators by using technology in education in the most effective way. We aim to raise the technology leaders of the future by increasing the quality in robotic coding and applied courses. In this direction, with our constantly developing product range and educational materials, we aim to provide practical and advanced technology-based educational tools that are suitable for the needs of learners at all levels. Increasing efficiency in education, integrating technological innovations into the world of education and developing products that can compete on a global scale are among our basic principles.

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What Do We Offer?

STEM TRAINING KITS

You can learn robotics and electronics from scratch to advanced level with training sets consisting of CODLAI Products!

PROGRAMMABLE ROBOTIC KITS

You can reinforce the foundations established with training kits with robotic kits, and learn what, when, where and how you can use it in daily life!

CODLAI EDITOR

You can perform either block-based or text-based programming and simulation with the dual-language supported 'CODLAI Editor' program that you can use on all platforms. Moreover, a web editor that does not require installation is waiting for you! For more: www.editor.codlai.com

CURRENT CURRICULUM

CODLAI products are supported by course programs and sample applications prepared by leading instructors in the sector. Get a 1-0 head start on your training with its current and even future-visioned curriculum.

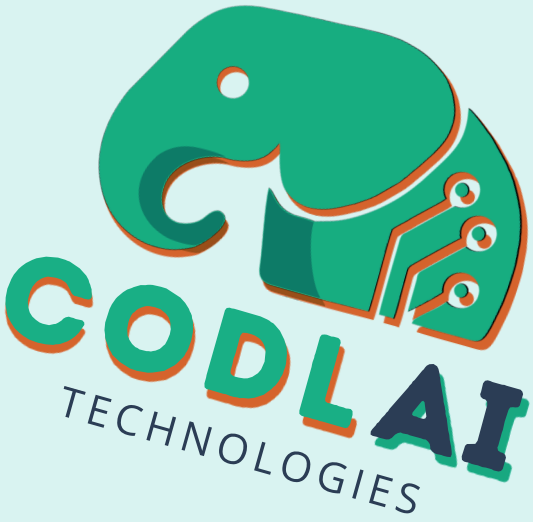
RELIABLE CONTENT

Our sample applications and programs on our CODLAI site have been prepared by expert trainers and checked by our engineer team. We take a firm stance against misinformation and misinformation!

ALWAYS FULL SUPPORT

CODLAI products are always with you, not just until the first sale. We are waiting for you at www.codlai.com, where you can find all kinds of support and updated content about the products! You can also always get a response as quickly as possible with our Whatsapp live support line.

ArmBot Installation Guide



ArmBot Installation Guide

WARNING

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1. Entrance

1.1 Overview of the Regulation

- ***CE Compliance***

This device is appropriate for both residential and commercial environments. The CE Mark indicates compliance with European Union regulations.

- Electromagnetic Compatibility (EMC) Directive 2014/30/EU
- Low Voltage Directive 2014/35/EU (equivalent to A2:2013)
- Radio and Telecommunications Terminal Equipment (R&TTE) Directive 1999/5/EC

This device can be operated at a maximum ambient temperature of 35 *C. Do not expose to temperatures below 5 *C or above 40 *C. THERE IS A RISK OF EXPLOSION IN CASE OF IMPROPER APPLICATION OF BATTERIES AND POWER ADAPTER. PLEASE USE THE BATTERIES AND ADAPTER SPECIFIED FOR THE PRODUCT IN ACCORDANCE WITH THE INSTRUCTIONS.

1.2 Safety Guidelines

Avoid using this device in proximity to magnetic fields, as this may negatively impact its performance.

If you suspect an issue with the device or any of its components, please consult the technical service team. In the event of a malfunction, the device should be repaired by the technical service. Kindly refrain from attempting repairs on your own.

Avoid applying excessive pressure to the device through striking, dropping, or pushing it. Such actions may result in damage to or destruction of the device and its components.

Avoid exposing the device to direct sunlight. Keep it away from high-temperature environments and refrain from contact with hot surfaces.

Avoid direct exposure of your device to liquids. Refrain from leaving it in rainy or humid conditions, and take measures to prevent such exposure. Do not keep the product's power adapter connected during thunderstorms or heavy rainfall.

Keep the device, its accessories, components, and packaging out of reach of infants and children to mitigate the risk of suffocation and injury.

1.3 Guidance Information

ATTENTION: This sign and warning message denotes specific regulations that must be adhered to for user safety.

Before utilizing your device for the first time, please read and adhere to this original user manual along with the accompanying safety warnings. Retain this manual for future reference or for subsequent users.

- Before using ArmBot, make sure it is properly assembled.
- Install in a flat, clean, and spacious area.
- Keep children and pets away from the parts during assembly.

2. Basic Information

2.1 Overview

Picture 1 - ArmBot

ArmBot is an expandable mechanical tool designed by the Codlai R&D team for use in your robotics projects. ArmBot has 4 axes and has a wide range of uses;

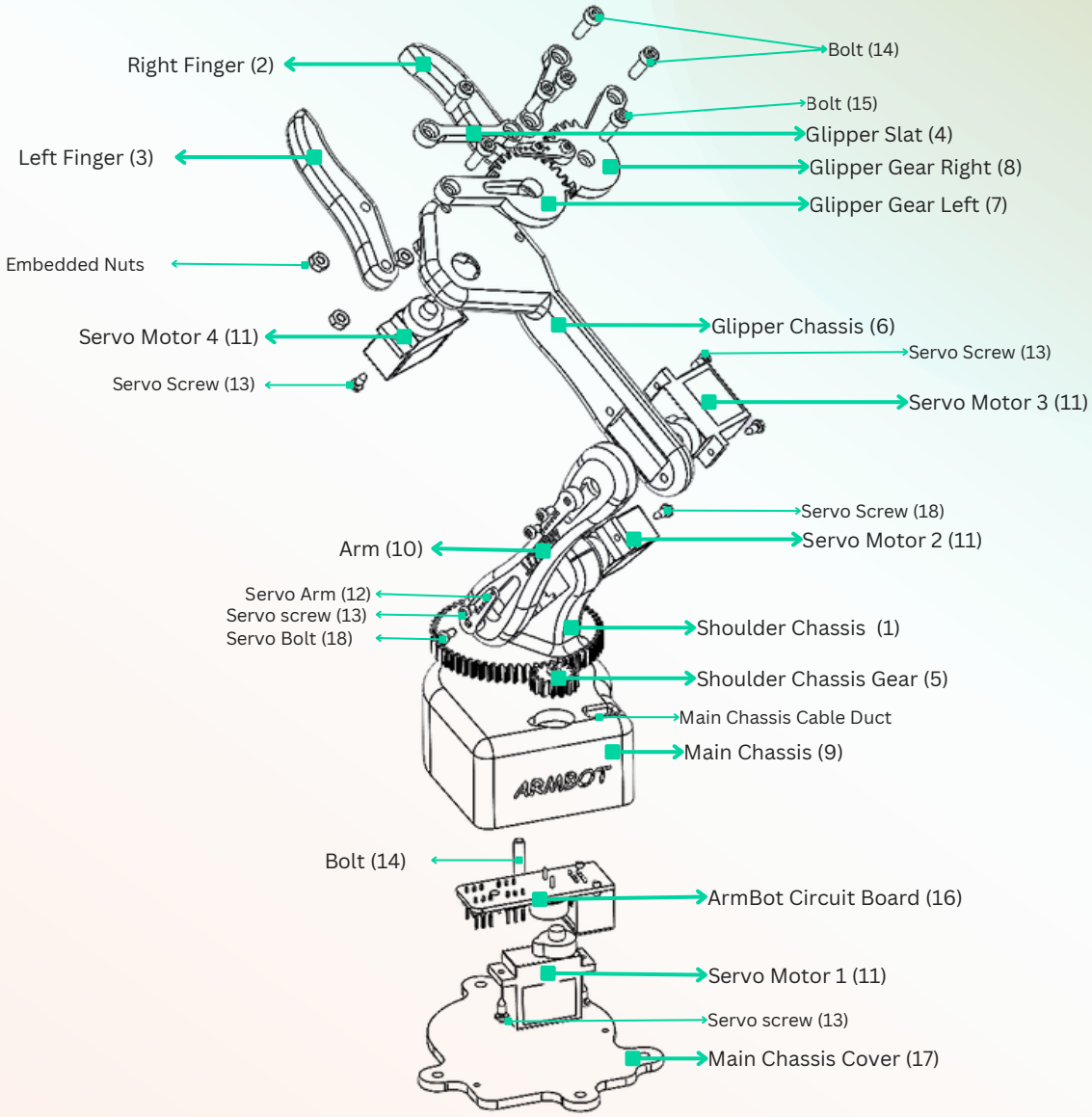
- It can be equipped with Minibot and can move autonomously.
- It can be equipped with Minibot and controlled from IotBot, computer, phone and tablet. (With Wi-Fi)
- It can be controlled directly with IotBot.
- It can be equipped with various sensors due to its developable platform.
- The entire product is produced with 3D printing. In this way, you can produce the parts on your own 3D Printer, and even develop and add new features. CarBot's installation is quite simple and practical.

In addition to these features, there are special block options for ArmBot in the Codlai editor.

2.2 Dimensions

Box Size	: 30 cm x 25 cm x 10 cm (Sent disassembled)
Installed Dimensions	: 30 cm x 25 cm x 15 cm
Product Weight	: 168 gr

3. ArmBot Assembly and Parts List



Picture 2 - ArmBot Skeleton

PICES NO.	PIECES	QN.	PICES NO.	PIECES	QN.
1	Shoulder Chassis Right	1	13	Servo Screw	8
2	Finger	1	14	M3 x 12 mm Bolt	5+1
3	Left Finger	1	15	M3 x 8 mm Bolt	3+1
4	Glipper Slat	2	16	ArmBot Circuit Board	1
5	Shoulder Chassis Gear	1	17	Main Chassis Cover	1
6	Glipper Chassis	1	18	Servo Screw	4
7	Glipper Gear Left	1	19	30 cm Communication Cable	1
8	Glipper Gear Right	1	20	15 mm YSB Screw	4+1
9	Main Chassis	1	21	Black Velcro Clamp	2+1
10	Arm	1	22		
11	Servo Motor	4	23		
12	Servo Arm	3+1	24		

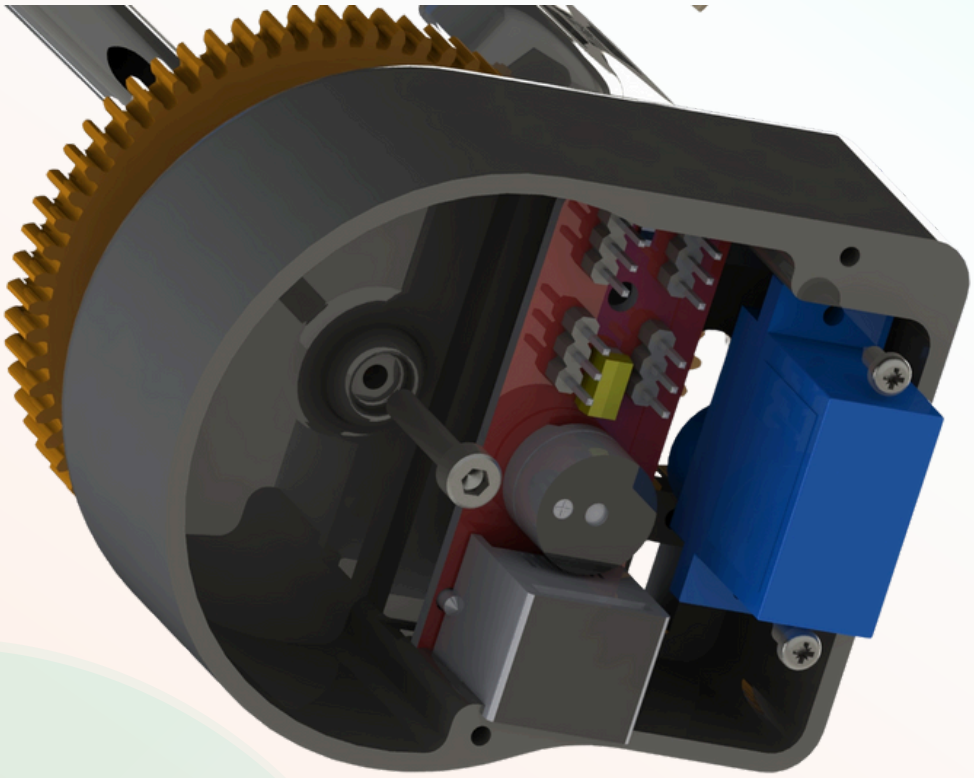
4. ArmBot Assembly Instructions

4.1 Mechanical Assembly

The assembly parts are given in the previous section. The parts to be used in the instructions given below are given in parentheses and each step is supported by pictures to make assembly easier. Please follow the steps in order.

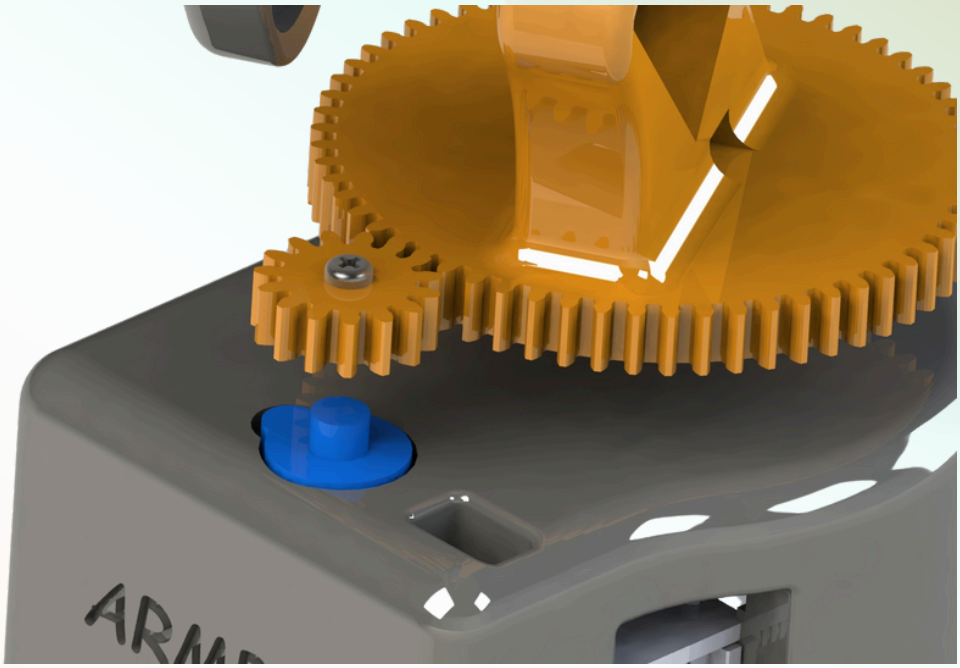
NOTE: We recommend tightening the screws after the vehicle's motor connections are made. Do not tighten the screws of the robot arm too much, this will prevent the movements of the axes. It will be sufficient to turn it all the way and leave it.

1. Align the bolt holes of the shoulder chassis (5) and the main chassis (9) and fix them with the bolt (14) from the bottom of the main chassis. The two parts will stay together thanks to the embedded nut in the bolt hole of the shoulder chassis. There is a suitable slot for the servo motor (11) under the main chassis (9). Place the servo motor (11) in this slot and fix it with the screw (13). Fix the ArmBot card (16) inside the main chassis with the screw (13).



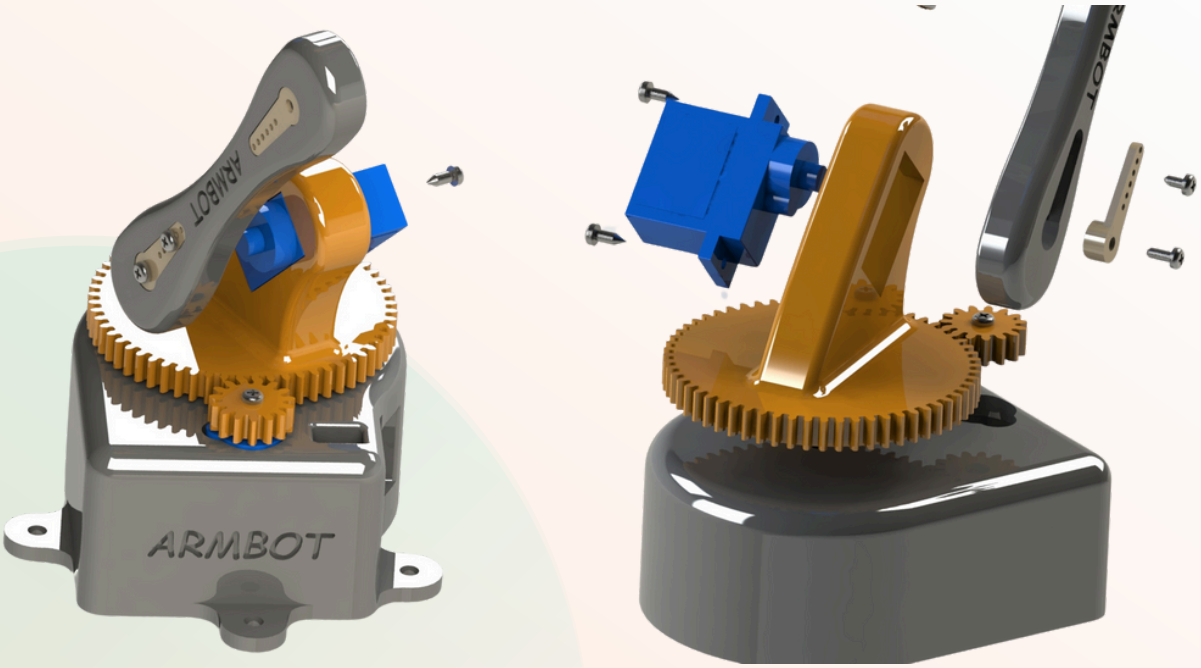
Picture 3 - Assembly Stage - 1

2. The servo motor wheel fixed to the main chassis (9) will be visible from the top of the chassis. We attach the shoulder chassis gear (5) to this wheel and fix it with the bolt (18), so that the servo motor's 1st axis (right and left) can move easily. (For calibration, see page 12 item 5.1.)



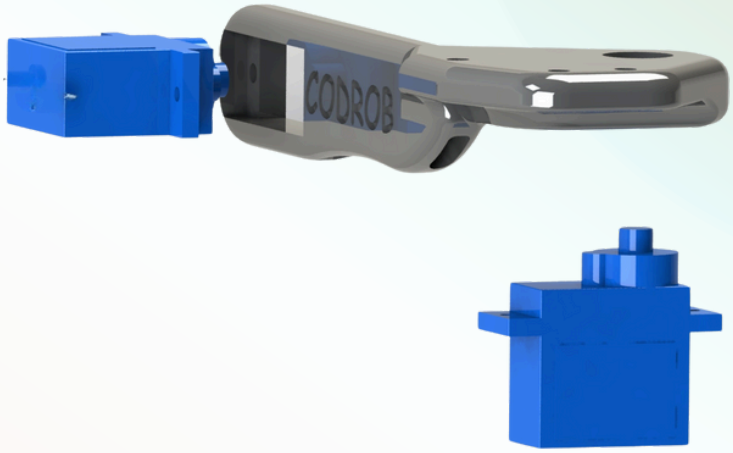
Picture 4 - Assembly Stage - 2

3. Attach the motor (11) to the servo motor socket on the shoulder chassis (5) and fix it with the screw (13). Place the servo arms (12) in the sockets on the arm (10) and fix it to the arm with the screw (13), then attach the arm (10) to the servo motor wheel on the shoulder chassis (5) and fix it with the bolt (15). In this step, we finish our 2nd axis (up and down). Pass the servo motor cables through the main chassis (9). (For calibration, see item 5.2 on page 12.)



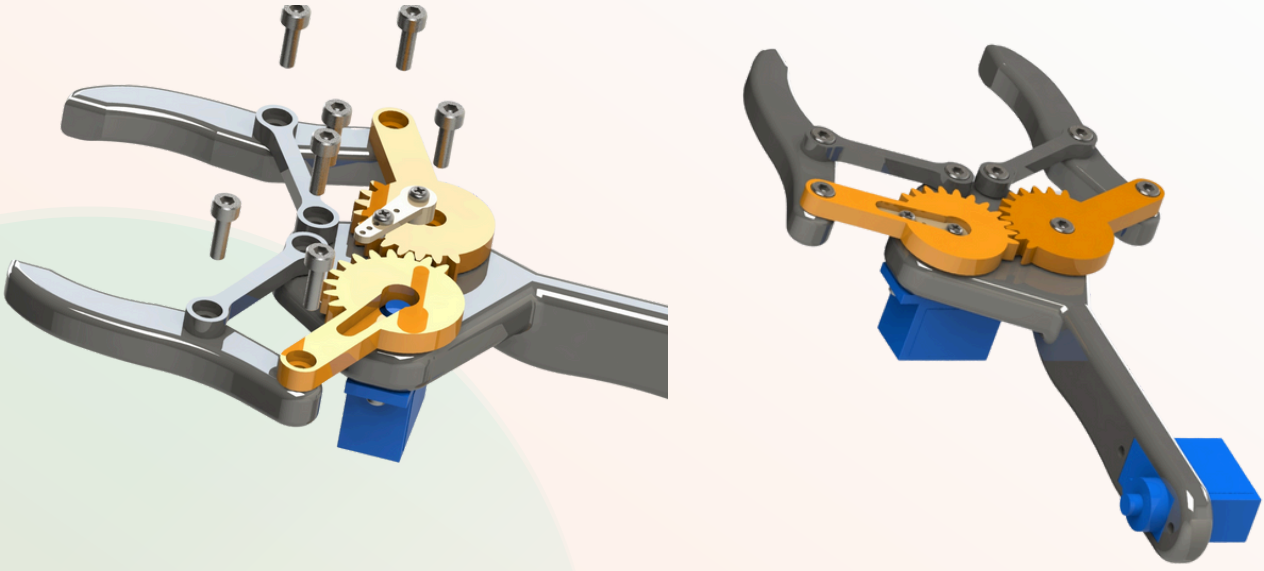
Picture 5 - Assembly Stage - 3

4. We place servo motors (11) in the motor housings located in the glipper chassis (6) section. We will fix these motors with the servo arm screws (13) located on the arms, so we do not need to screw these motors to the chassis. The motors on this part will provide the movement of the fingers, which are the 3rd axis movement (up and down) and the 4th axis (hold-and-release) movement. (The cable connections of the servo motor providing the finger movement will be sent ready.)



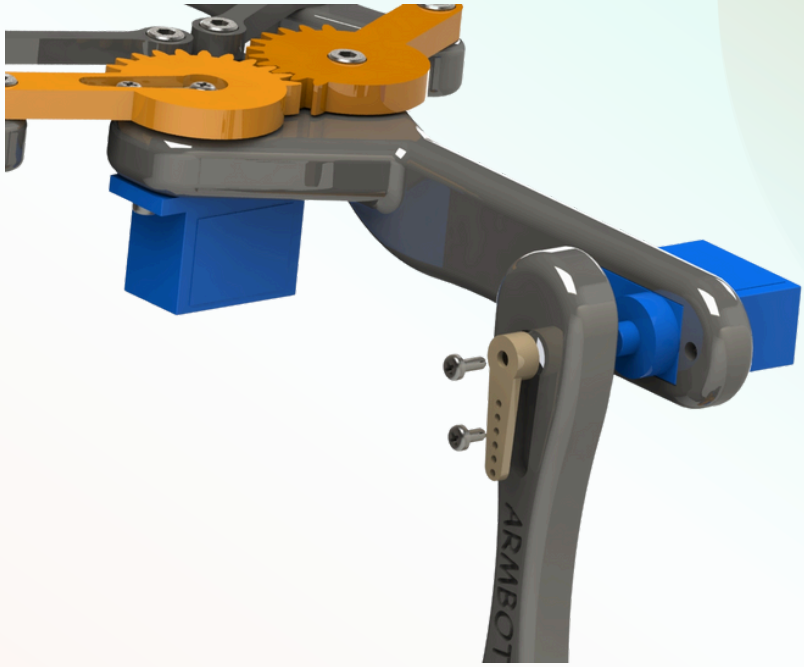
Picture 6 - Assembly Stage - 4

5. Place the servo arm (12) on the right gripper gear (8) and fix it to the wheel with the screw (13) and fix it to the servo motor with the bolt (15). Fit the left gripper gear (7) to fit the right gear and fix it to the gripper chassis with the bolt (15). (The gears should be in line and in the last stage of the wheel.) We fix the gripper strips (4) to the gripper chassis (6) with the bolt (15). We fix the right finger (2) to the right glipper gear (8), the left finger (3) to the left gripper gear (7) with the bolt (14). We fix the gripper strips to the fingers with the bolt (15). There are embedded nuts on the chassis and fingers, so the assembly will be easier. (For calibration, see page 12, item 5.4.)



Picture 7 - Assembly Stage - 5

6. Assemble the gripper chassis (6) and arm (10) with the bolt (18). (For calibration, see item 5.3 on page 12.)



Picture 8 - Assembly Stage - 6

7. After making the motor connections, fix the main chassis fixing part (17) to the main chassis (9) using the screw (13). (If ArmBot wants to be fixed to the ground, it can be fixed using the screw (20).)

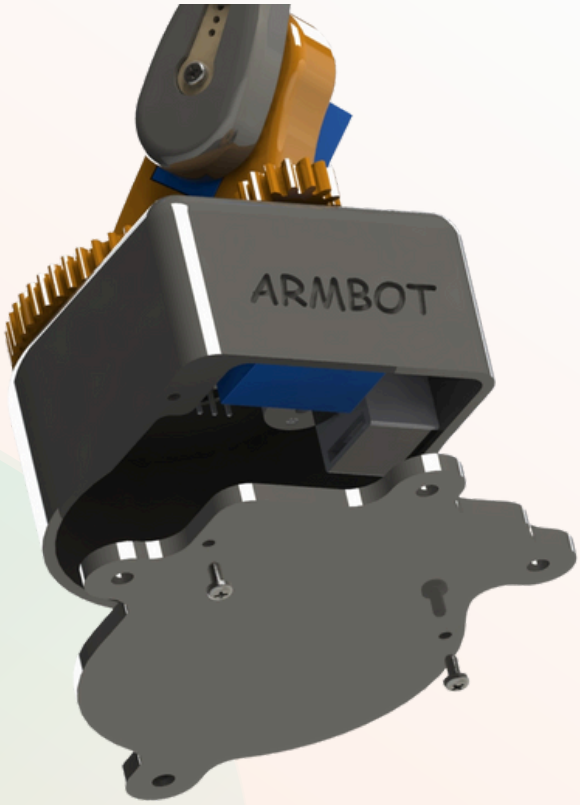
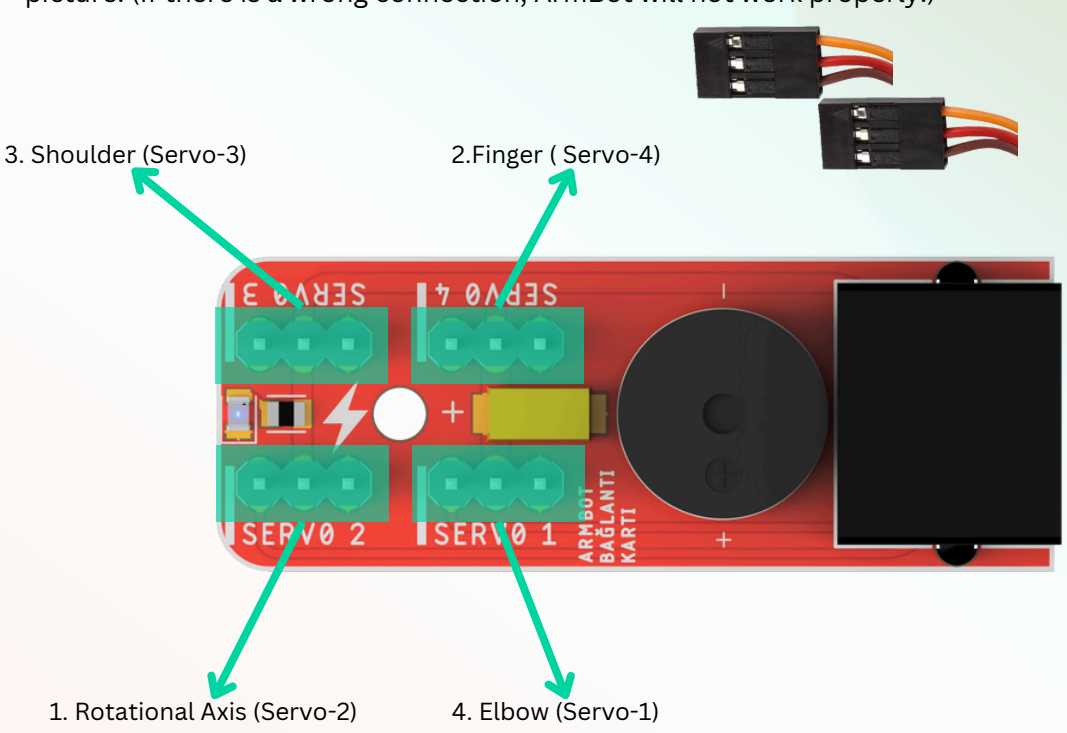


Figure 9 - Assembly Stage - 7

4.2 Electronic Assembly

1. Connect the servo motor cables that we passed through the main chassis (9) as shown in the picture. (If there is a wrong connection, ArmBot will not work properly.)



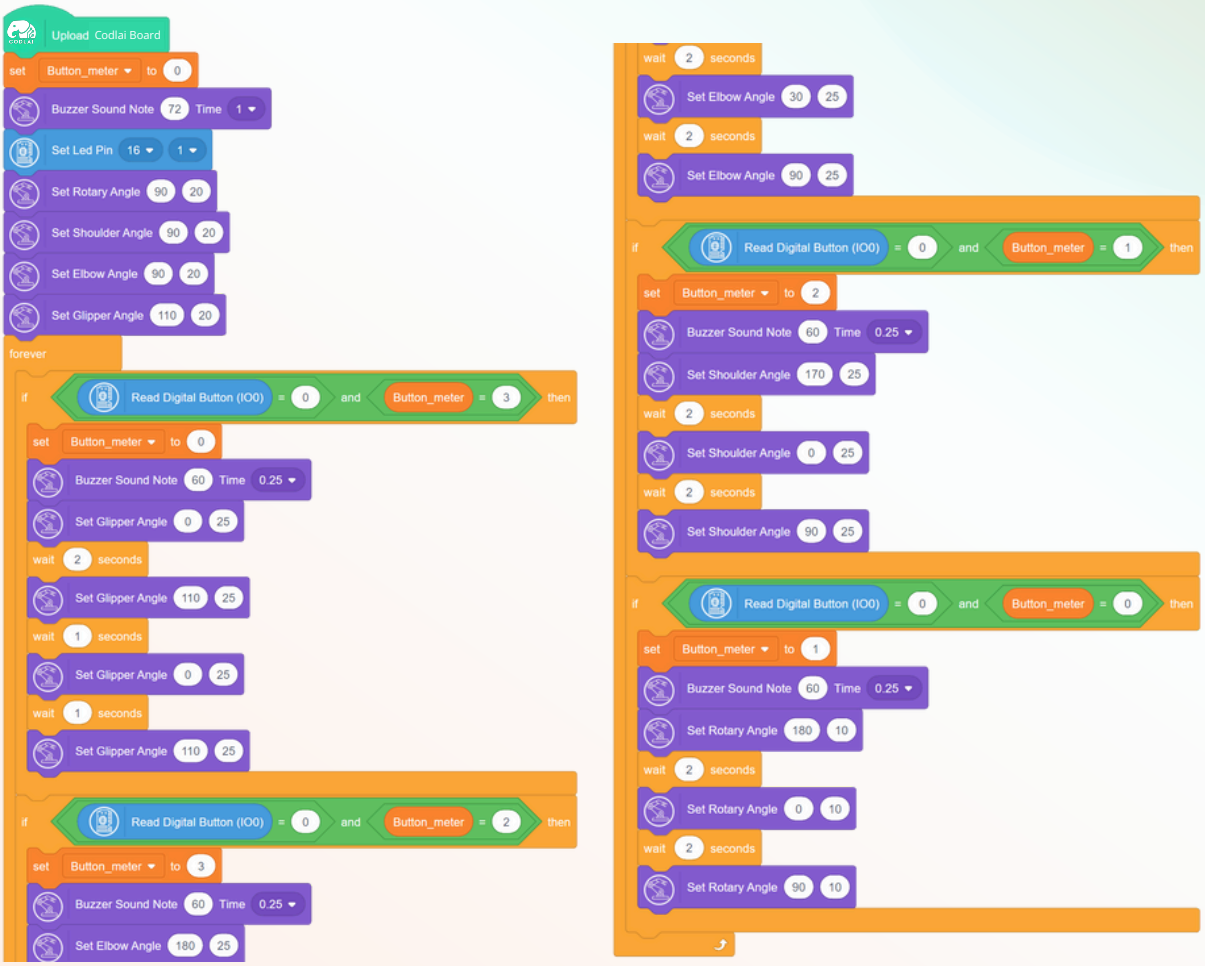
Picture 10 - Installation Diagram

2. To prevent cable clutter and ensure easier movement of the product, organize the cables using the clamps (21) included in the box. (A suitable example is given in the picture.)

Picture 11 - Finished Product

5. Calibration

In order for ArmBot to work as desired, the motor angles must be adjusted correctly. These adjustments can be easily made from the Codlai editor. After adjusting the axis settings of the motors one by one, perform a general check with the test software. These adjustments should be made during assembly. (You will be directed here in the assembly section.) ArmBot calibration blocks for the Codlai editor program are given below. As seen in the blocks, each time the "Io0" button is pressed, the axes will move between the angles we specified in order and return to the zero position we specified.

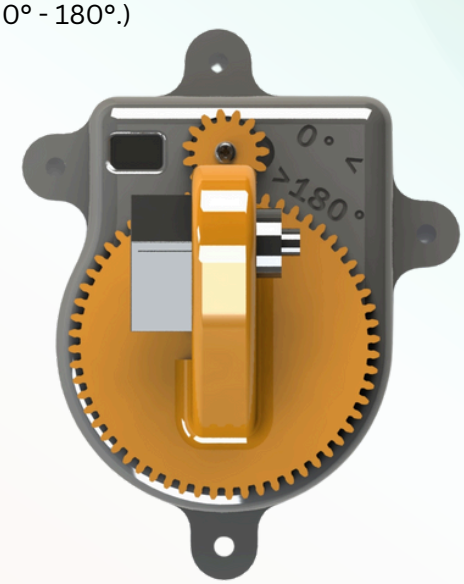


Picture 12 - Codlai Editor ArmBot Calibration Blogs

5.1 Rotational Axis Calibration

After assembling the servo motor of the main chassis (9), make sure that it is connected to the servo slot 2 on the ArmBot circuit board (16). Using the Codlai editor, upload the calibration software to the MiniBot and connect it to the ArmBot circuit board.

When the software is activated, the motor will be at 90°. While the motor is in this position, connect the Shoulder chassis gear (5). The part should look like the picture. (The Servo Motor will be able to travel between 0° - 90° - 180°.)



Picture 13 - Rotational Axis Calibration Position

5.2 Shoulder Calibration

After the shoulder chassis (1) servo motor is installed, make sure that it is installed in the servo 3rd slot on the ArmBot circuit board (16).

When the software starts, the motor will be at 90°. While the motor is in this position, install the arm (10). The part should look like the picture. (The servo motor will be able to travel between 0° - 90° - 180°.)

Picture 14 - Shoulder Calibration Position

5.3 Elbow Calibration

After assembling the servo motor on the arm side of the chassis (6), make sure that the glipper is attached to the servo slot 1 on the ArmBot circuit board (16).

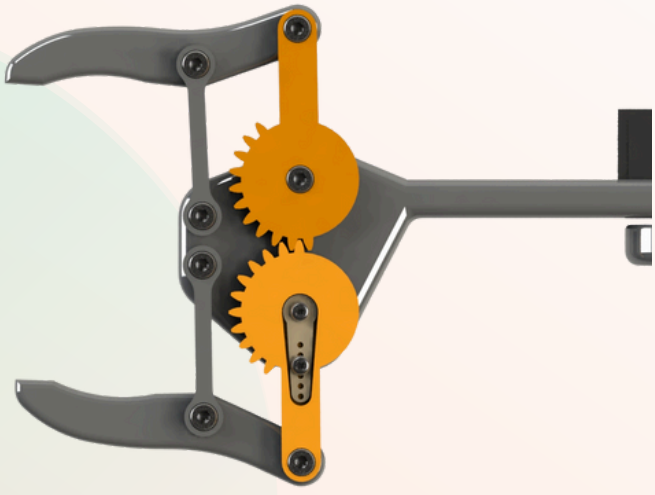
When the software starts, the motor will be at 90°. While the motor is in this position, attach the glipper chassis. The part should look like the picture. (The servo motor will be able to travel between 0° - 90° - 180°.)

Picture 15 - Elbow Calibration Position

5.4 Finger Calibration

After assembling the servo motor on the finger side (1) of the glipper chassis, make sure that it is installed in the servo slot 4 on the ArmBot circuit board (16).

When the software starts, the motor will be at 90°. While the motor is in this position, install the glipper gears (7 - 8). The part should look like the picture. (The servo motor will be able to travel between 0° -110°.)



Picture 16 - Finger Calibration Position

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"ROBOTIC CODING FOR EVERYONE"

CODLAI TECHNOLOGIES INC.

In this period when technology is advancing Decently, robotics and coding skills are among the most valuable competencies of the future. CODLAI Technologies A.Sh. as such, we invite you to step into this exciting world.

Encode the Future with CODLAI
Our mission is to provide innovative, accessible and effective solutions to students and educators by using technology in education in the most effective way.

Be the Technology Leaders of the Future
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