M.A.R.C.H

The Multipurpose Artificial Reaching Clasping Hand!

What is M.A.R.C.H?

Introducing our revolutionary robotic arm, designed to be your trusted companion and household assistant. This innovative device is not just a tool; it's your best friend that seamlessly integrates into your daily life.

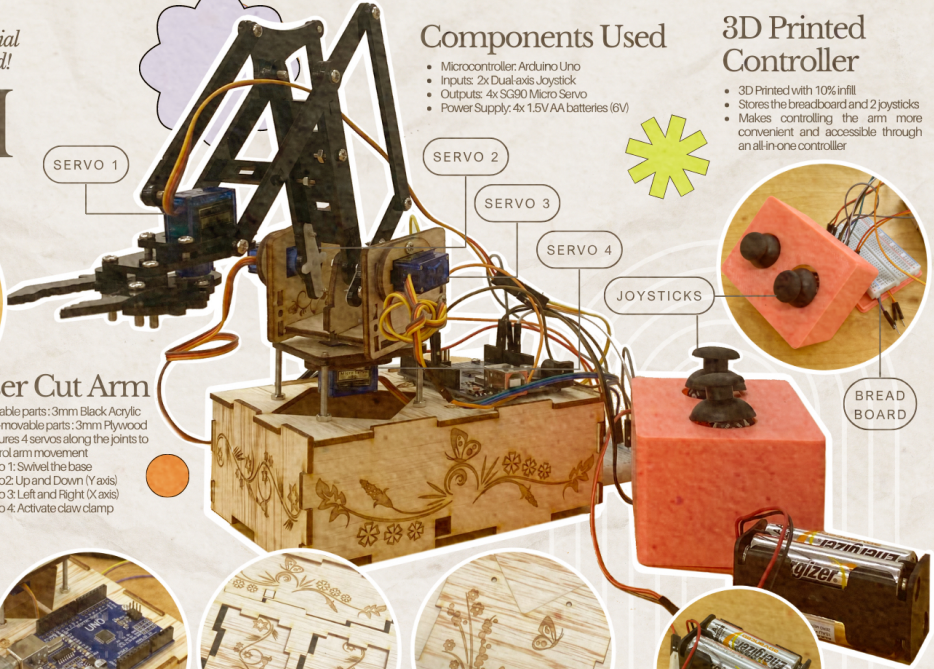
Equipped to perform a variety of tasks around the house, from fetching items to light cleaning. Embrace the future of home technology with a robotic arm that's more than just a helper – it's your supportive and friendly partner in making daily living easier and more enjoyable.

Claw clamp has small grooves to optimise friction and grip when picking up items

How does it work?

The M.A.R.C.H operates through a combination of four servos and an Arduino Uno, with two joysticks acting as controllers through the programming software. As users manipulate the joysticks, the Arduino interprets their movements and translates them into commands for the servos. These servos control the robotic arm's segments, enabling it to perform precise and coordinated motions.

The Arduino processes real-time joystick inputs, converts them into servo angles, and orchestrates the arm's movements accordingly. This integration of servos, Arduino Uno, and joystick controllers allow users to intuitively control the mini helper robotic arm, making it a versatile and user-friendly assistant for various household tasks.



Components Used

- Microcontroller: Arduino Uno
- Inputs: 2x Dual-axis Joystick
- Outputs: 4x SG90 Micro Servo
- Power Supply: 4x 1.5V AA batteries (6V)

3D Printed Controller

- 3D Printed with 10% infill
- Stores the breadboard and 2 joysticks
- Makes controlling the arm more convenient and accessible through an all-in-one controller

Laser Cut Arm

- Movable parts : 3mm Black Acrylic
- Non-movable parts : 3mm Plywood
- Features 4 servos along the joints to control arm movement
- Servo 1: Swivel the base
- Servo2: Up and Down (Y axis)
- Servo 3: Left and Right (X axis)
- Servo 4: Activate claw clamp

Laser Cut Base

- Made of 3mm Plywood (indicating it is non-movable by the servos)
- Supports and boosts the robotic arm

Houses the Arduino Uno

Raster Engraved Nature themed designs

Double AA Battery powered power supply