

# ARTICULATED ROBOTIC ARM TRAINER ( 5 - AXIS )



i ARM V

**Didactic 5 - Axis Articulated Robotic Arm**

**GUI Control**

**Realtime 3D Simulation**

**MATLAB Compatible**



**ARTICULATED ROBOTIC ARM TRAINER ( 5 - AXIS )** is a Robotic Arm with full fledged Graphical User Interface which is used to simulate actions of Human Arm with an additional tool option for rotational movement. This kit is useful to learn the basics of Direct and Inverse Kinematics involved in designing of any Robotic platform. Real Time 3D representation of the Arm's motion is able to visualize through Software.

## HARDWARE

- ▶ Embedded AVR based Microcontroller for High Performance & Throughput
- ▶ 5 RC Servos for Precision Position Control
- ▶ Robust Aluminium Structure for Light Weight and Higher Strength
- ▶ Parallel Gripper for Better and Firm Grip
- ▶ USB Powered Servo Controller
- ▶ External Supply provided for Servo Motor

## TECHNICAL SPECIFICATIONS

- ▶ Degree of Freedom (DOF) : 5
- ▶ Base Height : 100 mm
- ▶ Shoulder Length : 104 mm
- ▶ Elbow Length : 104 mm
- ▶ Tool Length : 90 mm
- ▶ Reach ( Max. Extension Length ) : 320 mm
- ▶ Height ( Max. Extension Height ) : 450 mm
- ▶ Base Rotation Freedom : 0 to 180°
- ▶ Shoulder Movement Freedom : -90 to 0°
- ▶ Elbow Movement Freedom : -90 to 90°
- ▶ Tool Pitch : -90 to 0°
- ▶ Tool Reach : 40 mm
- ▶ Tool Roll : 0 to -180°
- ▶ Lift Weight ( Arm Extended ) : 60 gms
- ▶ Arm Weight : 1500 gms

## SOFTWARE

- ▶ Software - GUI control for Kinematics Analysis of Robotic Arm
- ▶ 3D Workspace Analysis and Real Time Simulation for each action of the Robotic Arm
- ▶ Compatible with other Licensed Software's like MATLAB
- ▶ Supported Operating Systems - Windows 2000/NT/XP, Ubuntu Linux

## EXPERIMENTS

- ▶ Study of Homogenous Transformations
- ▶ Measurement of Robot Specifications - Reach, Stroke, Repeatability, Accuracy, etc
- ▶ DK Analysis of 5 - Axis Robotic Arm
- ▶ IK Analysis of 5 - Axis Robotic Arm
- ▶ Task Planning : Pick & Place operations

## PACKAGE CONTENTS

- ▶ 5 - Axis Assembled Robotic Arm Trainer with Servo Controller : 01 NO
- ▶ Power Supply - 6V, 5A : 01 NO
- ▶ Workspace Chart : 01 NO
- ▶ Software CD : 01 NO
- ▶ Storage Box : 01 NO

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