Voluntary Project

SyArm Mk1

A simple robotic arm

By

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# Credits

At this point I personally want to express my thanks to all people who made this thing possible. As a lot of time and effort of this project was spent during school, I want to thank all teachers who supported me actively or did not force me to fully participate in their lessons.

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# Abstract

Many manufacturing tasks require a series of complex work or transport processes, which can be difficult to build a machine for. Robotic arms are a very flexible type of robots that can perform a lot of those complex tasks.

The SyArm is a simple and small version of such a robot, not built for heavy loads or accuracy, but for speed and the basic concept. It’s materials are cheep and simple and

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# Introduction

## Motivation

Robots always fascinated me in many ways: The way they are built, the way the software is made or simply the enormous tasks they can complete nowadays. As I had almost no lessons in school attending robotics and other related topics, so I have decided to learn it myself by building one.

I personally believe automation and especially robots are one of the most effective ways to fight poverty. When used right, they can get people out of jobs with miserable working conditions and accelerate technical development especially in low-wage countries.

Building this robot was kind of a first step towards helping people with the field of research I like.

## Goals

The following goals are for the first, not very optimised version, the capabilities of the robot are probably higher.

The goal is to build a fully functional robotic arm (see section “Construction”)

## Structure

# Basics

## Robotic Arms

## CNC Machines

# Construction

## Base

## Arm

### First Segment

### Second Segment

## Axial Bearing

## Tools

# Electronics

# Software

# Conclusion

# Appendix

# Sources and references