

# SYRINGE ACTUATED MECHANICAL ARM

Prepared by: Karthikayan Veloo

## ABSTRACT

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The scope of this project focuses on the basic principle of the mechanical arm in the industries but actuated by syringe which gives similar type of pneumatic force in smaller scale. This prototype helps to learn the kinematics motion, degree of freedom, the required arm torque in order to move the arm to pick up an object. This project considered as pick and place robot in the industry. This project can consider as a manual operated mechanical arm. The syringe force also considered in this project which enables the arm to move in the left right and up down motion. The weight of the arm also must need to be considered for the syringe support. Since this is a prototype, the concept and principle of working may be the same as pick and place robot but the movement will powered by syringe which replaces pneumatic cylinder power with manual operation.

This report presents the design and fabrication process that been carried out throughout the semester. The importance of each design requirement and how the Syringe Automated Mechanical Arm works been explained in this report with technical drawings. This report also examines the performance of the Syringe Automated Mechanical Arm during testing and the suggested improvements are recommended in the future.

This project is mainly calculations, in order to start designing it proper calculations and dimensions were considered first. This report outlines each of the manufacturing process and the working principle. There are some diagrams and picture have been attached to give more idea and to understand easily of the project and the concept of how it is manufactured and works.