

ROBOTIC HAND POWERED BY PNEUMATIC ARTIFICIAL MUSCLES

Prepared by: Kok Wei Tze

ABSTRACT

Pneumatic artificial muscles are pneumatic bladders that contract upon inflation. This mechanism can be harnessed as a pulling force for a variety of uses. Since pneumatic artificial muscles greatly resemble actual human muscles, they can be used in actuating robotic limbs. This report contains research on pneumatic artificial muscles and its use in actuating a robotic hand.

The research in this report covers the concept, theory, and construction of pneumatic artificial muscles. The design of a joint mechanism that can be actuated by pneumatic artificial muscles is also covered. In addition, the process of construction of a robotic hand is documented, as well as the process of integrating pneumatic artificial muscles into the design of the robotic hand to function as actuators.