

**DEVELOPMENT OF A TUBULAR INDUCTION
MOTOR FOR ACTUATING APPLICATIONS**

**This thesis is presented in partial fulfilment for the award of the
Bachelor of Engineering (Hons.) (Electrical)**

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ABSTRACT

This project describes the design of a tubular motor (known as railgun) based on the 3 phase induction motor concept. The tubular motor is a series of coils “activated” sequentially to pull the bullet along the railgun. A three phase supply is employed to produce alternating currents. Each alternating current rises and falls rhythmically in time and is 120° apart from the other two alternating currents. As a result, a transversing magnetic field is obtained. The field can be described as analogous to the rotating magnetic field in a 3-phase induction machine, but here it is in a linear direction.

Bullets are entered at one end of the railgun and exit on the other. Tests were conducted to determine the optimum size of the bullet at each current magnitude and the performance of the railgun.

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<u>CONTENTS</u>	<u>PAGE</u>
ABSTRACT	i
ACKNOWLEDGEMENT	ii
CONTENTS	iii
<u>CHAPTER 1</u>	
1.0 INTRODUCTION	1
<u>CHAPTER 2</u>	
2.0 THEORITICAL BACKGROUND	
2.1 Squirrel cage induction motor	3
2.2 Construction of a tubular motor	5
2.3 Basic operation of a tubular motor	7
2.4 Magnetic field	7
2.5 Solenoid	9
2.6 Coils	12
2.7 The rotating magnetic field	13
2.8 Traveling magnetic field	17

CHAPTER 1

1.0 INTRODUCTION

This project is to develop a tubular motor (known as railgun) based on the 3 phase induction motor concept. The tubular motor is a series of coils “activated” sequentially to pull the bullet along the railgun. A three phase supply is employed to produce alternating currents. The field can be described as analogous to the rotating magnetic field in a 3-phase induction machine, but here it is in a linear direction. As a result, a transversing magnetic field is obtained. Tests were conducted to determine the optimum size of the bullet at each current magnitude and the performance of the railgun.

Industrial types of impact punching equipment is usually based on pneumatic principles and normally rather bulky and requires a pneumatic compressor. This project intends to evaluate the possibility of achieving the same type of impact performance by using electrical means and it will reduce the cost.

This project was developed because want to shot the rivet to the wall. Because of that, the optimum size must be to determine. It is also can be used