FINAL YEAR PROJECT REPORT

Design, Fabrication and Control ofa Single Actuator Magnetic Levitation System Using PID Controller

A PROJECT REPORT

Submitted by

QAMAR SHAHZAD 101519-124

BILAL KHALID 101519-135

BARAWAR KHAN 101519-180

DEPARTMENT OF ELECTRICAL ENGINEERING

SCHOOL OF ENGINEERING

UNIVERSITY OF MANAGEMENT AND TECHNOLOGY

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In partial fulfillment of the requirements for the award of degree of

BACHELOR OF SCIENECE

IN

ELECTRICAL ENGINEERING

APPROVED

Project Advisor_____ Director Project_____

DEPARTMENT OF ELECTRICAL ENGINEERING

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DECLARATION

We declare that this project is our own original work, and that all sources have been accurately reported and acknowledged, and that this project has not been previously in its entirety, or in part been submitted at any academic institution in order to obtain an academic qualification.

Project Members: Project Advisor

QAMAR SHAHZAD 101519-124 Mr. Hassan Tariq

BILAL KHALID 101519-135 ----------

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ACKNOWLEDGEMENTS

First of all we would like to thank Allah Almighty who gave us the strength and power to do everything. Who gave us knowledge and wisdom and helped us in each difficulty and problem. He gave us the awareness to choose the right path to do something for mankind. This project is the result of a long period of hard work and support of many individuals who helped us time to time to achieve this goal. We would like to thank all of them for everything they have done for us. On the top of the list we would like to thank our parents who work from dawn to dusk for our comfort, who made everything available for us we could not even think of. They supported us both, morally and financially, had faith in us, believed in us, persuaded us and appreciated us on our accomplishments. Without them it was impossible for us to achieve anything. We cannot return even the smallest amount of that they gave us. In our lives they are truly a blessing of Allah.

We would like to thank our mentors and counselors. It is all because of their support and hard work for we are standing on a position in a society where we can distinguish ourselves from others. We would like to thank our honorable **Project Advisor: *Mr. HASSAN TARIQ***for his assistance and inspiring attitude during the course of our project. They were the one who were there to guide us and familiarize us with all new concepts. They helped us in fulfillment of this project by all true means. We would like to thank our Project Advisor for his extreme co-operation and encouraging attitude during this project.

Last but not the least we would like to thank all the individuals who helped us to accomplish the ultimate goal.

ABSTRACT

This report demonstrates the making of a magnetic levitation system and a crane structure.Maglev is seeking high intentions because of it low friction losses and low energy consumption. There are number of applications of this technology including high speed rail transportation system. Closed loop system and the magnetism are the two main keys or secrets of a floating object in the air.

The technique is merely based on numerical approach. In the magnetic levitation system the magnetic field is used to levitate an object in air at desired height. In the past, permanent magnets were used for this purpose and found that it is quite difficult to do that with permanent magnets because the there is no control of magnetic field in this case, either it becomes too strong or too weak. But for magnetic levitation we need a controlled field depending upon the weight and height or position of the levitating object. Ferromagnetic material is used in our object because it has high permeability. The design is made by using aexisting components in market; the electromagnet is capable of lifting a object from a set distance and levitate it in air by controlling the current of coil through the controller.

Key Notes: MAGNETIC COIL, MOTOR, PHOTOCELL, LIGHT EMITTING DIODE, TRANSFORMER

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