POLITEKNIK MALAYSIA

SULTAN SALAHUDDIN ABDUL AZIZ SHAH

FINAL PROPOSAL REPORT

Project Title	LEG STRENGTH TESTER
Student Name	NUR ABBYLIANA SYAFIQAH BINTI CHE MD SUDIN
Course's Code	DEE50102
Supervisor Name	PN. NAAGAJOOTHI AP ADIN NARAINA

DECLARATION BY THE CANDIDATE

I undersigned solemnly declare that the project report of Leg Strength Tester is based on my own work carried out during the course of our study under the supervision of Pn. Naagajoothi Ap Adin Naraina.

I assert the statements made and conclusions drawn are an outcome of my research work. I further certify that**:**

I. The work contained in the report is original and has been done by me under the general supervision of my supervisor.
II. The work has not been submitted to any other Institution for any other degree/diploma/certificate in this university.
III. We have followed the guidelines provided by the university in writing the report.
IV. Whenever we have used materials (data, theoretical analysis, and text) from other sources, we have given due credit to them in the text of the report and giving their details in the references.

Liana

(NUR ABBYLIANA SYAFIQAH BINTI CHE MD SUDIN)

08DEU19F2017

APPROVAL PAGE FOR FINAL YEAR PROJECT

Submitted in partial full of requirements for diploma of Electronic Medical Engineering at Politeknik Premier Sultan Salahuddin Abdul Aziz Shah by

Candidate:

Nur Abbyliana Syafiqah Binti Che Md Sudin

Department/Field of Concentration: Electrical

Engineering Department

TITLE: Leg Strentgh Tester

APPROVED:

_____ _____

Supervisor Project Signature

DATE: _____

ACKNOWLEDGEMENT

First and foremost, praises and thanks to the God, the Almighty, for His showers of blessings throughout my final year project to complete the project successfully.

I would like to express my deep and sincere gratitude to my project supervisor Pn. Naagajoothi Ap Adin Naraina, professor of electrical engineering department for giving me the opportunity to do project and providing invaluable guidance throughout this project. Her dynamism, vision, sincerity and motivation have deeply inspired me. She has taught me the methodology to carry out the research and to present the research works as clearly as possible. It was a great privilege and honor to work and study under her guidance. I am extremely grateful for what she has offered me.

I am extremely grateful to my parents for their love, prayers, caring and sacrifices for educating and preparing me for my future. Finally, my thanks go to all the people who have supported me to complete the research work directly or indirectly.

ABSTRACT

Researcher: Nur Abbyliana Syafiqah Binti Che Md Sudin

Presentation Title: Leg Strentgh Tester

Research focus: Biomedical Electronic

School: Politeknik Premier Sultan Salahuddin Abdul Aziz Shah

Student Level: Diploma

Abstract:

Paralysis is a condition when one or more parts of the body cannot be moved, and the paralysis can be temporary or permanent. This condition can be caused by a disorder in a muscle or nerve, caused by a specific injury or disease. Treatment of paralysis depends on the cause of the paralysis itself. treatment can be in the form of medication, physiotherapy, surgery or the use of aids if paralysis remains. The most recommended treatment is physiotherapy because of its low risk and good for the patient's development. Therefore, with this Leg Strength Tester, patients can know the level of recovery of their legs every day after going through a physiotherapy routine. This leg strength tester is intended for users who have weak legs after an accident and so on. In this age of technology, we can see more and more patients who have problems with partial paralysis or certain limbs due to accidents and some even due to lack of movement in daily activities because they are too dependent on technology. A patient's leg strength level will be measured using a weight scale and shown in led form according to the patient's leg strength development stage. With the development of technology in this project, we can measure the level of development of patient leg strength simply by placing the foot on a weight scale that serves as input and then in the process of using Arduino uno so that the electronic network can read the input, process the input and then produce the appropriate output. Desired, after that the results are shown through a 16x2 lcd and some red led beads act as output based on the results of the leg strength test. This way patients can self -measure the level of development of their legs after doing an exercise routine at home while waiting for an appointment schedule with a physiotherapist.

Keywords: Leg Strength Tester, Paralysis, Treatment, Physiotherapy, Weight Scale, Arduino Uno, Lcd, Led red

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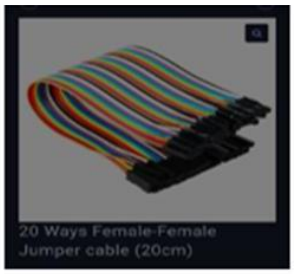

No.	Perkara	Harga
1	Jumper cable x3 (20cm 20pcs)	RM15
2	Adaptor	RM15
3	Arduino Uno	RM36
4	Extender	RM5
5	LCD 16X2	RM20
6	Preset 10kohm	RM1
7	Led Red	RM1 X 5
8	Resistor 470ohm	RM1 X 5
9	Weight scala	RM90
10	Hx711	RM15
11	Postage	RM10
12	TOTAL COMPONENTS	RM209

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Now days I see more and more people suffering from problems such as temporary paralysis or injuries to the legs and arms, whether due to diet, bacterial infections, accidents, hereditary diseases or nerve problems

This electronic project Leg Strength Tester is intended for users who have weak legs after an incident and so on. Every day patients can find out the level of achievement of their leg recovery.

1.2 PROJECT BACKGROUND

During the study of this project, I found that nowadays many people are paralyzed - is someone whose legs are partially or completely unable to move and also have poor leg endurance that causes them to be unable to stand properly or long. Temporary paralysis or injuries to the legs and arms can occur as a result of either diet, bacteria infections, accidents, hereditary diseases or nerve problems occurring in the body. So as we know patients with temporary paralysis or even accident victims will be recommended to do physiotherapy and it will take quite a long time for the recovery period. At this point the mental state of the patient will be disturbed and feel in a state of incompetence. Even will feel that physiotherapy does not provide any recovery and effectiveness. Thus with the presence of a foot strength tester, the patient is able to measure the level of achievement or recover changes that occur in his or her foot. can indirectly give hope and encouragement to patients to continue working through physiotherapy.

1.3 PROBLEM STATEMENTS

During the study of this project, I found that nowadays many people are paralyzed - is someone whose legs are partially or completely unable to move and also have poor leg endurance that causes them to be unable to stand properly or long. Temporary paralysis or injuries to the legs and arms can occur as a result of either diet, bacterial infections, accidents, hereditary diseases or nerve problems occurring in the body. So as we know patients with temporary paralysis or even accident victims will be recommended to do physiotherapy and it will take quite a long time for the recovery period. At this point the mental state of the patient will be disturbed and feel in a state of incompetence. Even will feel that physiotherapy does not provide any recovery and effectiveness. Thus with the presence of a foot strength tester, the patient is able to measure the level of achievement or recovery changes that occur in his or her foot. can indirectly give hope and encouragement to patients to continue working through physiotherapy.

1.4 PROJECT OBJECTIVE

The main objective of this project is to measure the level of leg strength of patients with poor endurance problems . Other specific objectives are:

i. Helping patients with endurance problems in weak legs and arms.

ii. Helping the patient to have a strong mentality in treating the problem.

iii. Helping the patient to know the level of achievement for the treatment of his feet and hands.

1.5 PROJECT SCOPE

Leg strength testers are used to help a patient with problems test his or her leg strength from time to time and understand how dealing with a paralyzed or injured patient involves a lack of endurance in the leg, organizing coding and basics in Arduino programming well.

The scope and limits of this research are:

i. Leg strength tester is a tool used in medicine and psychology to assist the patient in measuring the level of recovery of his leg and at the same time help the patient to have good emotions and more motivated to do physiotherapy after seeing achievement or change in result.

ii. Students can learn and understand the subject of Electronics in a short time and students can also learn the basics of coding programming code. In addition, students will also indirectly learn the basics of Arduino UNO programming.

1.6 PROJECT SIGNIFICANCE

Various benefits can be gained by using this project. Among the benefits that can be obtained are benefits to society. We are well aware that many patients have problems with strength or endurance in the legs and need to undergo a relatively long period of physiotherapy. So much so that some patients start to despair and start saying Physiotherapy doesn't give any change. Through the creation of this project, the patient can always measure the resistance of achievement or changes that occur in his feet after trying to undergo physiotherapy to treat his legs that are paralyzed or have poor endurance. The patient's emotions will also not be disturbed and even more eager to do physiotherapy after seeing the changes shown on the leg strength tester. This is because this project focuses on patients whohave foot problems and need to undergo physiotherapy treatment either at home in person or in hospital in order to measure or assess the extent of changes that occur over a period of time doing physiotherapy. In addition, the benefits to the country. This is because in the use of this project, he is very easy to use and does not use an electrical source. With this indirectly for patients who have financial problems and do physiotherapy at home can still afford to have this leg strentgh tester measuring device. The facilities provided will definitely provide advantages and benefits for the people and the country in order to reduce the problem of the percentage of these patients. Moreover, the benefits to the economy. Economic benefit is any benefit that we can measure in terms of the money it generates. Revenue and net revenue can be generated with the creation of this project. This is because the targeted scope of this project is for patient development. This directly means the project can be sold to a wide range of general qualifiers who want to monitor the level of achievement of paralyzed patients and patients with leg endurance problems such as former accidents. Finally, the benefits to the environment. Through the creation of this project, several things can be changed such as switching to solar battery power consumption.This is because the use of solar batteries can reduce the burden of electricity bills and even more environmentally friendly.

1.7 CHAPTER SUMMARY

This project is very good for patients who have temporary mud problems or leg strength problems who are undergoing physiotherapy treatment, in addition it encourages patients to continue to strive to achieve the best level and continue to recover from the disease he faced.