

الإهداء

إلى ... الذين يتعلمون العلم ليعلموه
إلى ... من احترقوا ليخلقوا منا كيانا مع الصورة

المشاعل التي ذرت لتهدينا سواء السبيل

**** الآباء والأمهات ****

وإليك يا أيتها الأرض التي منحتنا المن والسلوى

وسقنا من ربيع الحياة أليك يا وطني

**** وللإخوة والأخوات ****

إليهم جميعا أهدى ثمرة جهدي

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ABSTRACT

There are some people suffering from dropping foot problem, a weakness in the communication between the nerve center of the brain and nerves in the foot, leading to difficulty in lifting the foot when walking then failure walking the right way. Drop foot correction help patients by generating electrical pulses at given amplitude, duration and frequency directed to the foot nerves and help to walk. The FES device is designed to tow sensors are placed inside the shoe sole which are connected to a stimulator device by wireless in order to avoid the difficulty of using the wires while on the move. The device is designed on the basis of low power consumption and low costing standard microcontroller, standard electronic equipment's and standard wireless components were used which are easily found in the market.

المستخلص

إسقاط القدم مشكلة يعاني منها بعض الأشخاص وهي: ضعف في الاتصال بين أعصاب مركز المخ وأعصاب القدم مما يؤدي للصعوبة في رفع القدم عند المشي فيؤدي إلى الفشل في المشي بطريقة سليمة . جهاز تقويم إسقاط القدم ساعد المرضى عن طريق توليد نبضات كهربائية بترددات وفولتية معينة موجهة لأعصاب القدم تعمل على تحفيز الأعصاب والمساعدة على المشي. صمم جهاز من حساسين موضوعان داخل الحذاء تتصل مع جهاز التقويم عن طريق اللاسلكي وذلك لتجنب صعوبة استخدام الأسلاك أثناء الحركة. الجهاز صمم على أساس طاقة استهلاكية منخفضة وذلك باستخدام جهاز إرسال لاسلكي (زقبي) ومتحكم دقيق وكذلك منخفض التكلفة، لأن جميع مكونات الجهاز من الحساسات والمتحكم الدقيق والإلكترونيات متوفرة وبأسعار منخفضة.

Table of Contents

الإستهلال.....	I
الإهداء.....	II
Acknowledgment.....	III
Abstract.....	IV
المستخلص.....	V
Table of Contents.....	VI
List of tables.....	IX
List of figure.....	X
List of abbreviation.....	XI
Chapter one.....	1
1. Introduction.....	1
1.1 Overview.....	1
1.2 Problem statement.....	2
1.3 Proposed solution.....	2
1.4 Objectives.....	2
1.5 Scope.....	2
1.6 Methodology.....	3
1.7 Chapter organization.....	3
2. Literature Review.....	5
Chapter two.....	5
Literature review.....	5
2.1 previous work.....	5
2.2 The Gait Cycle.....	7
2.3 Sensors.....	10

2.4 Microcontroller.....	12
2.5 Zigbee transceiver module.....	14
2.6 High Voltage & Switching circuit.....	17
2.7 Liquid Crystal Display.....	18
2.8 Electrodes.....	20
Chapter three.....	23
3. Circuit design.....	23
3.1 System design.....	23
3.2 Sensor and transmitter part.....	24
3.3 Receiver and Control part.....	26
3.4 Flow chart.....	30
Chapter four.....	32
Result and discuss.....	32
4.1 Simulation and result.....	32
4.2 Sensor and transmitter part.....	32
4.3 Receiver and control part.....	37
4.4 sleep mode.....	44
4.5 Comparison between the proposed solutions.....	46
4.6 Discussion the design.....	47
Chapter five.....	48
Conclusion and recommendation.....	48
5.1 Conclusions.....	48
5.2 recommendation.....	49
References.....	50

Appendix A.....	52
Appendix B.....	54
Appendix C.....	62
Appendix D.....	69

List of Tables

Table 2.1: pin out of cc2025.....	17
Table 2.2: Pin description of 16x2 LCD.....	20
Table 3.1: states of patient in TX.....	27
Table 3.2: State patent in RX.....	28

LIST OF FIGUERS

Figure 2.1: Typical Phases of the Gait Cycle.....	8
Figure 2.2: Force Sensitive Resistors.....	11
Figure 2.3: microcontroller ATMEGA16.....	14
Figure 2.4: CC2520.....	16
Figure 2.5: MC34063 8 Pins DC to DC Converter.....	19
Figure 2.6:16x2 LCD.....	20
Figure 2.7: Color Coding of the Electrode Cables.....	21
Figure 2.8: Flexible Electrode Pads.....	22
Figure 3.1: block diagram Wireless Microcontroller Based FES Device.....	24
Figure 3.2: Circuit diagram of sensors and transmitter.....	25
Figure 3.3: Circuit Diagram Receiver and Control.....	28
Figure 3.4: High voltage and switching circuit.....	30
Figure 3.5: flow chart.....	31
Figure 4.1: state of sensors in (TX) side (stand) (ISIS protus)	34
Figure 4.2: state of sensors in (TX) side, foot rise (ISIS protus).....	35
Figure 4.3: state of sensors in (TX), foot-hold (ISIS protus).....	36
Figure 4.4: state of sensors in (TX), foot-strike (ISIS protus).....	37
Figure 4.5: set frequency and (PWM) (ISIS protues).....	38
Figure 4.6: stand state in (RX) side, (ISIS protus).....	38
Figure4.7: output of stand mode in (RX) side, (ISIS protus).....	40
Figure 4.8: walk mode (foot-rise) in (RX) side (ISIS protus).....	40
Figure 4.9: Output of walk mode in (RX), (ISIS protus).....	41
Figure 4.10: output of walk mode with 13 PWM (ISIS protus).....	42
Figure 4.11: walk mode (foot-rise) with 223 PWM (ISIS protus).....	42
Figure 4.12: output of walk mode (foot-hold), (ISIS protus).....	43
Figure 4.13: output of walk mode (foot- strike), (ISIS protus).....	44
Figure 4.14: sleep mode from walking (hold -foot) in (RX).....	45
Figure 4.15: sleep mode from stand in (RX).....	46

List of abbreviations

ATmega16	:	Atmel 16 Mega
AVR	:	advanced virtual RISC.
EEPROM	:	electric erasable programmable read only memory.
EMG	:	electromyography sensor.
RISC	:	reduce instruction set computer.
RAM	:	Random access memory.
RF	:	radio frequency.
SPI	:	serial peripheral interface.
LCD	:	Liquid Crystal Display.
MISC	:	Minimum Instruction Set Computer.
FES	:	functional electrical stimulation.
FSR	:	force sensitive resistor.
WPANs	:	wireless personal area networks.