Dedication

To those who are searching knowledge. To reach the harvest of true hard work which we started from planning the plans of this project not forgetting the assistance of all our families. It is presented to fathers, mothers, brothers, sisters and also the staff of Sudan University of Science and Technology specially Dr. Jacqueline John

We extend our pleasures to the staff of Electronic System Research Centre for a good helping, and finally to the one who spent a lot of time to help us. With best regard to our supervisor Dr. musab ahmed.

Acknowledgement

All praises are due to Allah, who taught human everything. And His peace and blessings be on the Prophet, his household and all those that follow the truth which he was sent with till the day of resurrection.

Firstly, we like to thank our Parents for taking care with us. We appreciate their efforts and sacrifices more daily as we walk through life. May Allah reward them abundantly in this life and the hereafter and be merciful to them and accept them to paradise. We are grateful to our families for their support.

We would like to thank Supervisor Dr. musab ahmed for his continuous support to the project until reaching this state.

We would like to thank Electronic System Research Center, specially Eng Abdlkreem and Fawaz and fannaly cano forget Dr. **Jacqueline John** for giving us the opportunity to attend the Electronics in the control program , helping us finding the project component and for helping us in the printed circuit board construction.

We are indebted to all my teachers that have provided guidance and knowledge in all my education endeavors. May Allah reward all of them and ease their tasks. We also wish to thank all our friends for their friendship and support.

Lastly We pray that Allah teach us that which will benefit us, and benefit us with that which will profit us.

ABSTRACT

At the turn of the millennium, the number of elderly and disabled in need of care is increasing dramatically. Currently, the services provided to the elderly and disabled in most public institutions are unsatisfactory; this is largely because of their dependence on human assistance and costs. One obvious area that needs immediate attention is transportation in public areas like airport terminals, hospitals, museums, office buildings etc.

Robotic technology is going through major revolutions. Sparked by a dramatic increase of computation and the substantial decrease in costs of major sensor technologies (e.g. cameras), the goal of intelligent service robots that can assist people in their daily living activities is closer than ever.

In this thesis a low cost mobile robotic platform was built to transport the elderly and disabled people from one point to another. Software such as code vision and protus7.7 was used in programming and simulating the circuit of the robot.

التجريد

في مطلع الألفية الثالثة ، هنالك عدد من المسنين والمعاقين الذين يحتاجون إلى الرعاية في تزايد كبير حاليا ، فإن الخدمات المقدمة للمسنين والمعوقين في معظم المؤسسات العامة غير مرضية ، وهذا ادي الى حد كبير لاعتمادهم على المساعدات الإنسانية والتكاليف . منطقة واضحة تستدعي اهتماما عاجلا من وسائل النقل في الأماكن العامة مثل المطارات والمستشفيات والمتاحف والمباني المكتبية الخ.

التكنولوجيا الآلية تمر بثورات كبرى. اندلعت بسبب الزيادة الهائلة في عدد الحسابات والانخفاض الكبير في تكاليف تكنولوجيات الاستشعار (مثل آلات التصوير) ، والهدف من الروبوتات الذكية الخدمة التي يمكن أن تساعد الناس في أنشطتهم اليومية هي أقرب من أي وقت مضى.

في هذه الأطروحة بني برنامج الربوت المتحرك بتكلفة منخفضه لنقل كبار السن والمعاقين من نقطة الى اخرى. البرمجيات مثل codevision و proteus7.7 تستخدم في البرمجة ومحاكاة حركة الروبوت

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ABBREVIATIONS

ADC: analog to digital converter
DACs: Digital to Analog Converters
DC motors: Direct Current motor
DIP: Dual In line Package
EEPROM : Electrical EPROM
EPROM: Erasable Program ROM
IC: Integrated Circuit
IR: Infrared sensors
LED: Light Emitting Diode
LCD: Liquid Crystal Display
LDR: Light dependent resistor
MCU: micro-controller unit
PCB: Printed Circuit Board
PIC: Programmable Interface Controller
PWM: Pulse Width Modulation
PIC: Programmable interface control
RISC: Reduced instruction set computer
ROM: Read Only Memory

RPM: revolution per mints

UV: Ultra Vitol