



Line following robot
with IR Sensors

Line Follower Robot Project Report Details

Sabine Zange



Line Follower Robot Project Report Details:

Digital control methods for a line following robot Steffen Block, 2003-12-09 Inhaltsangabe Abstract The project aim was to build a robot controlled by a PIC microcontroller to follow a line completely autonomously and as quickly as possible The robot meets the requirements from the RoboRama Contest followed a T shape course and obtained more safety features Different kinds of design features and digital algorithms were developed and tested in order to achieve the best results Applied project management techniques and used key skills guaranteed the successful completion of the project in the design and construction of hardware and software technologies The hardware was based on a block structure with infrared sensors at the front of the vehicle Their analogue signals were transferred to digital logic with a comparator This information used a PIC 16F84A microcontroller to control the movement and direction of the robot with pulse width modulation PWM All parts were mounted on a chassis implemented with a mechanical construction set Batteries of 9V provided the necessary power supply Adjustments were done through iterative steps to come to the final result of the robot system The main adapted design feature was the motor and steering system First of all a separate servomotor for the steering and a single DC motor for the forward movement was fixed Through implemented and first testing steps this resolution lacked the required performance Hence the design changed to two DC motors which offered a satisfactory solution The electronic circuit was designed with the computer aided design tool Proteus and executed as a strip line board The software algorithm development started with the truth table to reduce the possible events from thirty two to the eleven applied conditions The generated flowchart gave the program a structure and applied the truth table decision in different PWM generations Finally the software was written in assembler language and implemented on the PIC Inhaltsverzeichnis Table of Contents iTitlei iiAbstractii iiiAcknowledgementsiii ivList of Figuresiv vList of Tablesvi viList of Abbreviationsvii viiList of Symbolsix viiiTable of Contentsx 1 Introduction1 1 1Project Aims2 1 2RoboRama Rules2 2 Specification and Analysis5 2 1Specification of the project5 2 1 1Research and definition for the project5 2 1 2Resources management7 2 2Project time plan8 3 Design of the robot9 3 1Design of the electronic hardware11 3 1 1Sensors OPD 70911 3 1 2Comparator Futuristic Sustainable Energy & Technology Rajesh Singh, Anita Gehlot, P.S. Ranjit, Dolly Sharma, 2022-06-07 Futuristic Sustainable Energy and Technology provides a structured overview of the concept of Futuristic Sustainable Energy and Technology It also explores the promotion of the sustainable development of renewable energy from the perspectives of technology modelling application sustainability and policy This book is dedicated to the advancement of energy efficiency to mitigate consumption ensure and replenish expand and reuse elective energy supplies and to replicate the damage caused by previous energy initiatives This book has offered a large stage of experimentation for practitioners experts researchers and teachers to incorporate and analyze their latest developments as well as the trends and difficulties encountered and the ongoing evolution of the stage in these areas

Designing, Constructing, and Programming Robots for Learning Eteokleous, Nikleia, Nisiforou, Efi, 2021-11-19 The field of

robotics in a classroom context has seen an increase in global momentum recently because of its positive contributions in the teaching of science technology engineering mathematics STEM and beyond It is argued that when robotics and programming are integrated in developmentally appropriate ways cognitive skill development beyond STEM can be achieved The development of educational robotics has presented a plethora of ways in which students can be assisted in the classroom Designing Constructing and Programming Robots for Learning highlights the importance of integrating robotics in educational practice and presents various ways for how it can be achieved It further explains how 21st century skills and life skills can be developed through the hands on experience of educational robotics Covering topics such as computational thinking social skill enhancement and teacher training this text is an essential resource for engineers educational software developers teachers professors instructors researchers faculty leaders in educational fields students and academicians

Scientific and Technical Aerospace Reports ,1994-03 **Computational Principles of Mobile Robotics** Gregory Dudek,Michael Jenkin,2024-02-08 Now in its third edition this textbook is a comprehensive introduction to the multidisciplinary field of mobile robotics which lies at the intersection of artificial intelligence computational vision and traditional robotics Written for advanced undergraduates and graduate students in computer science and engineering the book covers algorithms for a range of strategies for locomotion sensing and reasoning The new edition includes recent advances in robotics and intelligent machines including coverage of human robot interaction robot ethics and the application of advanced AI techniques to end to end robot control and specific computational tasks This book also provides support for a number of algorithms using ROS 2 and includes a review of critical mathematical material and an extensive list of sample problems Researchers as well as students in the field of mobile robotics will appreciate this comprehensive treatment of state of the art methods and key technologies *Government Reports Announcements & Index* ,1988 *Handbook of Research on Design, Control, and Modeling of Swarm Robotics* Tan, Ying,2015-12-09 Studies on robotics applications have grown substantially in recent years with swarm robotics being a relatively new area of research Inspired by studies in swarm intelligence and robotics swarm robotics facilitates interactions between robots as well as their interactions with the environment The Handbook of Research on Design Control and Modeling of Swarm Robotics is a collection of the most important research achievements in swarm robotics thus far covering the growing areas of design control and modeling of swarm robotics This handbook serves as an essential resource for researchers engineers graduates and senior undergraduates with interests in swarm robotics and its applications **Mechatronic Futures** Peter Hehenberger,David Bradley,2016-06-10 Offering a comprehensive overview of the challenges risks and options facing the future of mechatronics this book provides insights into how these issues are currently assessed and managed Building on the previously published book Mechatronics in Action it identifies and discusses the key issues likely to impact on future mechatronic systems It supports mechatronics practitioners in identifying key areas in design modeling and technology and places these in the wider

context of concepts such as cyber physical systems and the Internet of Things For educators it considers the potential effects of developments in these areas on mechatronic course design and ways of integrating these Written by experts in the field it explores topics including systems integration design modeling privacy ethics and future application domains Highlighting novel innovation directions it is intended for academics engineers and students working in the field of mechatronics particularly those developing new concepts methods and ideas

Monthly Catalogue, United States Public Documents ,1995

International Encyclopedia of Robotics ,1988

Resources in Education ,1998

British Reports, Translations and Theses British Library. Document Supply Centre,1991

Neuromorphic Engineering Systems and Applications André van Schaik,Tobi Delbruck,Jennifer Hasler,2015-07-05 Neuromorphic engineering has just reached its 25th year as a discipline In the first two decades neuromorphic engineers focused on building models of sensors such as silicon cochleas and retinas and building blocks such as silicon neurons and synapses These designs have honed our skills in implementing sensors and neural networks in VLSI using analog and mixed mode circuits Over the last decade the address event representation has been used to interface devices and computers from different designers and even different groups This facility has been essential for our ability to combine sensors neural networks and actuators into neuromorphic systems More recently several big projects have emerged to build very large scale neuromorphic systems The Telluride Neuromorphic Engineering Workshop since 1994 and the CapoCaccia Cognitive Neuromorphic Engineering Workshop since 2009 have been instrumental not only in creating a strongly connected research community but also in introducing different groups to each other s hardware Many neuromorphic systems are first created at one of these workshops With this special research topic we showcase the state of the art in neuromorphic systems

Government Reports Announcements & Index ,1993-02

Informatics in Control Automation and Robotics Juan Andrade Cetto,Jean-Louis Ferrier,José Miguel Costa Dias Pereira,Joaquim Filipe,2008-05-30 The present book includes a set of selected papers from the third International Conference on Informatics in Control Automation and Robotics ICINCO 2006 held in Set bal Portugal from 1 to 5 August 2006 sponsored by the Institute for Systems and Technologies of Information Control and Communication INSTICC The conference was organized in three simultaneous tracks Intelligent Control Systems and Optimization Robotics and Automation and Systems Modeling Signal Processing and Control The book is based on the same structure Although ICINCO 2006 received 309 paper submissions from more than 50 different countries in all continents only 31 were accepted as full papers From those only 23 were selected for inclusion in this book based on the classifications provided by the Program Committee The selected papers also reflect the interdisciplinary nature of the conference The diversity of topics is an important feature of this conference enabling an overall perception of several important scientific and technological trends These high quality standards will be maintained and reinforced at ICINCO 2007 to be held in Angers France and in future editions of this conference

Accounting Information Systems Arline A. Savage,Danielle Brannock,Alicja Arnold,2025-10-21

Written by an author team uniquely composed of educators and practitioners Accounting Information Systems 2nd Edition offers a modern approach that helps students understand how course concepts are applied in the workforce and why developing these skills are so important By incorporating their own experience and showcasing real world applications through features like Sample LinkedIn Job Posts and Featured Professional spotlights the authors connect course concepts to industry allowing for greater understanding while helping students see the different opportunities a career in AIS can provide Accounting Information Systems also focuses on teaching students how to make informed business decisions through case based learning and data analysis applications Students work through Julia s Cookies a flexible running case with data sets and questions in Tableau and Excel that helps them understand how various systems come together to support a business and how those systems evolve Integrated analysis questions that take a tool agnostic approach are also available to promote critical thinking and communication skills With a practical perspective and high quality bank of assessments and practice opportunities this text has been written to help inspire and prepare the next generation of accounting professionals

Scientific Information Bulletin ,1992 **Industrial Engineering** ,1987 Welding Research Abroad ,1994

Programming and Customizing the OOPic Microcontroller Dennis Clark,2003 this authoritative guide delves deeply into this groundbreaking technology and delivers a programming guide and application notes dedicated to the OOPic environment This title includes a full object listing as well as an IDE Integrated Development Interface hardware and software guide and a CD OM with all project and experiment codes that you incorporate to customise your own projects Stay ahead of the robotics curve tap into the power of OOPic microcontrollers with this indispensable volume

Whispering the Techniques of Language: An Emotional Quest through **Line Follower Robot Project Report Details**

In a digitally-driven earth where monitors reign great and quick conversation drowns out the subtleties of language, the profound techniques and psychological subtleties hidden within phrases often move unheard. Yet, situated within the pages of **Line Follower Robot Project Report Details** a charming fictional prize blinking with raw emotions, lies an extraordinary journey waiting to be undertaken. Penned by a talented wordsmith, that marvelous opus invites visitors on an introspective trip, gently unraveling the veiled truths and profound affect resonating within the fabric of each word. Within the psychological depths of this moving review, we shall embark upon a honest exploration of the book is primary themes, dissect its captivating publishing design, and succumb to the powerful resonance it evokes deep within the recesses of readers hearts.

<http://www.armchairempire.com/public/detail/Documents/How%20Do%20You%20Feel%20Board%20Game%20Photo%20First%20Games.pdf>

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