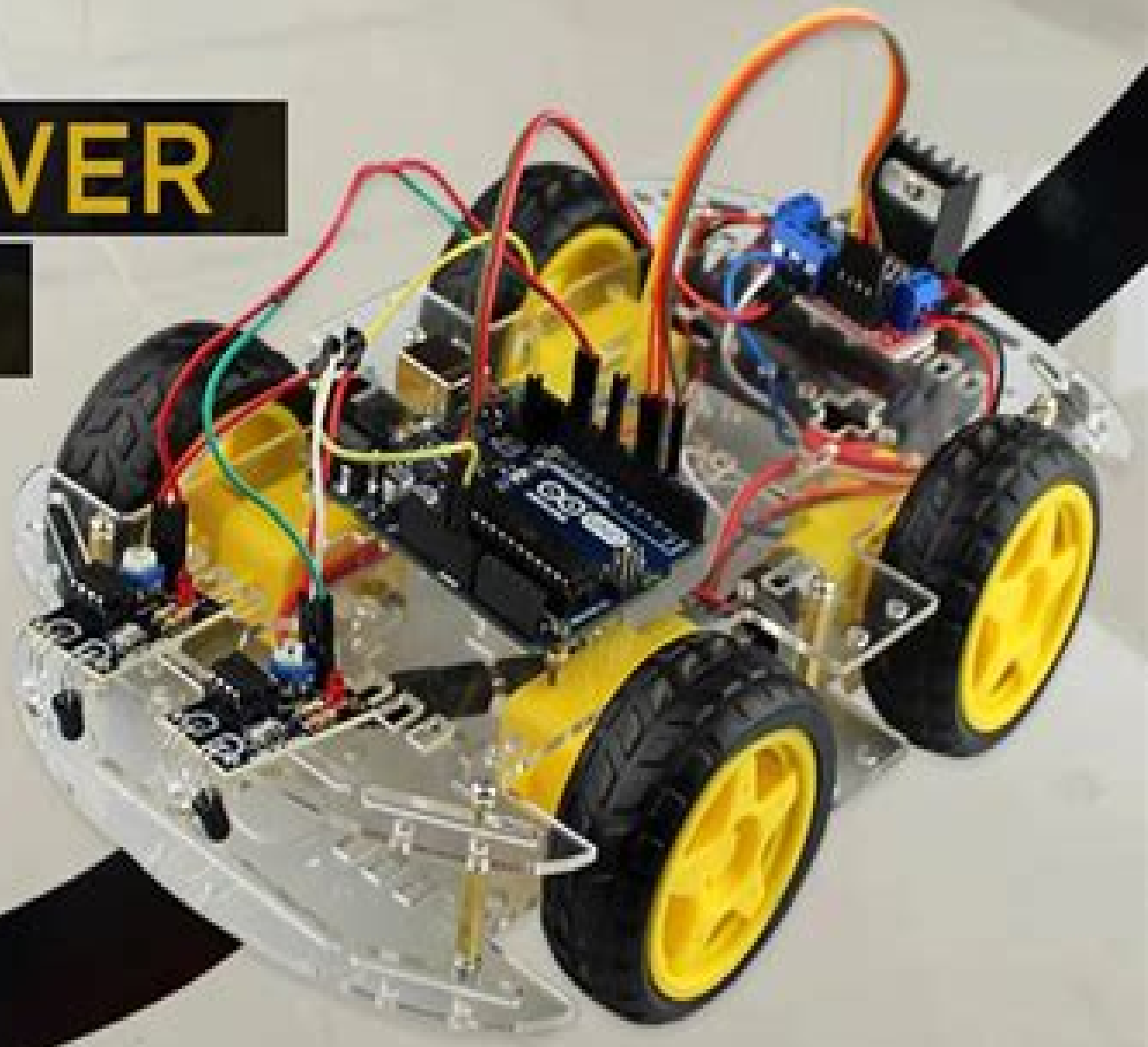


LINE FOLLOWER ROBOT



Project Paper On Line Follower Robot

Eteokleous, Nikleia,Nisiforou, Efi



Project Paper On Line Follower Robot:

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

iTitle
iiAbstract
iiiAcknowledgements
ivList of Figures
vList of Tables
viList of Abbreviations
viiList of Symbols
viiiTable of Contents

1 Introduction
1.1 Project Aims
2 RoboRama Rules
2.1 Specification and Analysis
2.2 Specification of the project
2.3 Research and definition for the project
2.4 Resources management
2.5 Project time plan
3 Design of the robot
3.1 Design of the electronic hardware
3.2 Sensors
3.3 OPD 7091
3.4 Comparator

Proceedings of TEEM 2023

José Alexandre de Carvalho Gonçalves, José Luís Sousa de Magalhães Lima, João Paulo Coelho, Francisco José García-Peñalvo, Alicia García-Holgado, 2024-08-04 This proceedings volume presents outstanding advances with a multidisciplinary perspective in the technological ecosystems that support Knowledge Society building and development. With its learning technology based focus using a transversal approach, TEEM is divided into thematic and highly cohesive tracks, each of which is oriented to a specific community of interest including researchers, professionals and students. Informatics and Education are the central issues in the conference tracks including broad scope research areas such as Educational Assessment and Orientation, Human Computer Interaction, eLearning, Computers in Education, Communication Media and Education, Medicine and Education, Learning Analytics, Engineering Education, Robotics in Education, Mechatronics, Diversity

in Education Gamification and Games for Learning **Control Engineering Theory and Applications** Jahangir Alam,Guoqing Hu,Hafiz Md. Hasan Babu,Huazhong Xu,2022-11-17 The book provides general knowledge of automatic control engineering and its applications Providing an overview of control theory and systems the chapters introduce transfer functions modeling of control systems automatic control systems block diagrams and signal flow graphs While control system analysis and design are accompanied by root locus methods and frequency response analyses distributed control systems nonlinearity in control systems including Z transformation are also presented With straightforward demonstrations examples and multiple choice questions this book can be used as a reference textbook for electrical and electronics engineering computer control engineering automation engineering mechatronics engineering mechanics robotics AI control systems hydraulics process engineering safety control engineering aeronautical and aerospace engineering auto pilot system decision making system and stock exchange and will be suitable for majors non majors and experts in the field of science and technology **Raspberry Pi Mechatronics Projects HOTSHOT** Sai Yamanoor,Srihari Yamanoor,2015-02-26 This book is targeted towards beginners and intermediate designers of mechatronic systems and embedded system design Some familiarity with the Raspberry Pi and Python programming is preferred but not required **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 *Exploring Raspberry Pi Projects* Barrett Williams,ChatGPT,2024-08-27 Exploring Raspberry Pi Projects Unlock Endless Possibilities with Your Raspberry Pi Dive into the limitless world of Raspberry Pi with Exploring Raspberry Pi Projects an indispensable guide packed with creative and practical projects that will transform how you use your Raspberry Pi Whether you re a beginner just getting started or a seasoned tech enthusiast looking for your next challenge this eBook is your ultimate companion Master the Basics and Beyond Start your journey with a comprehensive introduction to Raspberry Pi including detailed instructions on setting up your device installing the operating system and mastering essential Linux commands Move on to get acquainted with Python programming the language of choice for many Raspberry Pi projects Understand the

basics install Python and write simple yet impactful programs Unleash Your Creativity Explore the fascinating world of GPIO pins and learn to build simple but powerful projects Transform your home into a smart oasis by creating a smart light system a temperature and humidity monitor and a home security camera Dive into media and entertainment projects like building a media center with Kodi streaming online radio and setting up a retro gaming console that ll keep the fun going for hours Innovate with Robotics IoT and Home Automation Step into the future with robotics projects including building a line following robot and controlling motors and servos Connect your Raspberry Pi to the cloud build a WiFi controlled appliance and bring the Internet of Things IoT into your home Automate everyday tasks and set up a home automation hub to make your life simpler and more efficient Educational and Fun Projects Engage the younger generation or fuel your own curiosity with educational projects designed to thrill and teach Construct weather stations delve into data logging and even harness the power of artificial intelligence to build machine learning models and voice assistants Create art and music installations develop personal assistants and much more Troubleshooting and Resources Our final chapters provide valuable resources troubleshooting tips and insights into expanding your knowledge Join vibrant Raspberry Pi communities and stay ahead with future trends and emerging projects Unlock the full potential of your Raspberry Pi today with Exploring Raspberry Pi Projects Your adventure in innovation starts here Get your copy now and become the maker you ve always dreamed of being

The Enigma of Electronic Empowerment Pasquale De Marco, Welcome to the captivating world of microcontrollers where innovation and creativity converge to unlock endless possibilities In The Enigma of Electronic Empowerment we invite you to embark on a journey that will transform your understanding of microcontrollers and empower you to bring your electronic dreams to life This first to market book is your comprehensive guide to the remarkable PICAXE microcontroller Officially endorsed by the manufacturer it is the ultimate resource for hobbyists technology enthusiasts and anyone curious about the fascinating realm of microcontrollers With its conversational tone and easy to understand language this book is designed to make the complex world of microcontrollers accessible to all The Enigma of Electronic Empowerment begins by introducing you to the captivating history and evolution of microcontrollers From their humble beginnings to their widespread adoption you will gain insights into how these tiny devices have revolutionized the field of electronics Discover the advantages of using microcontrollers in various applications and explore the wide range of possibilities they offer As you delve deeper into the book you will be guided through the specifics of the PICAXE microcontroller Learn how to set up your development environment navigate the PICAXE programming language and upload your first program Troubleshooting tips and techniques will ensure a smooth and seamless experience as you embark on your microcontroller journey With a focus on hands on learning The Enigma of Electronic Empowerment presents a series of beginner friendly projects that will ignite your creativity and build your skills From LED blinking and temperature monitoring to motor control and robotics each project provides step by step instructions and practical insights to help you bring your ideas to life But this book doesn t stop

at the basics It takes you on a journey into the realm of advanced PICAXE projects showcasing the limitless possibilities of microcontroller technology Explore wireless communication Internet of Things IoT applications data logging and real time clock functions Push the boundaries of what is possible and unleash your imagination The Enigma of Electronic Empowerment is more than just a book it s a gateway to a world of electronic empowerment Join us on this thrilling adventure as we unravel the enigma of microcontrollers and inspire you to create innovate and explore The power to transform your ideas into reality is in your hands are you ready to embrace it *Proceedings of SAI Intelligent Systems Conference (IntelliSys) 2016* Yaxin Bi,Supriya Kapoor,Rahul Bhatia,2017-08-22 These proceedings of the SAI Intelligent Systems Conference 2016 IntelliSys 2016 offer a remarkable collection of papers on a wide range of topics in intelligent systems and their applications to the real world Authors hailing from 56 countries on 5 continents submitted 404 papers to the conference attesting to the global importance of the conference s themes After being reviewed 222 papers were accepted for presentation and 168 were ultimately selected for these proceedings Each has been reviewed on the basis of its originality novelty and rigorousness The papers not only present state of the art methods and valuable experience from researchers in the related research areas they also outline the field s future development *Robotics in Education* Wilfried Lepuschitz,Munir Merdan,Gottfried Koppensteiner,Richard Balogh,David Obdržálek,2017-08-28 This proceedings volume highlights the latest achievements in research and development in educational robotics which were presented at the 8th International Conference on Robotics in Education RiE 2017 in Sofia Bulgaria from April 26 to 28 2017 The content will appeal to both researchers and educators interested in methodologies for teaching robotics that confront learners with science technology engineering arts and mathematics STEAM through the design creation and programming of tangible artifacts giving them the chance to create personally meaningful objects and address real world societal needs This also involves the introduction of technologies ranging from robotics controllers to virtual environments In addition the book presents evaluation results regarding the impact of robotics on students interests and competence development The approaches discussed cover the whole educational range from elementary school to the university level in both formal as well as informal settings **Build and Program Your Own LEGO Mindstorms EV3 Robots** Marziah Karch,2014-11-26 Build and Program Your Own LEGO MINDSTORMS EV3 Robots Absolutely no experience needed Build and program amazing robots with the new LEGO MINDSTORMS EV3 With LEGO MINDSTORMS EV3 you can do modern robotics without complex wiring or soldering This step by step full color tutorial teaches all you need to know including basic programming skills most introductory guides skip Even better it s packed with hands on projects Start by unboxing your new EV3 kit and getting to know every component motors sensors connections remotes and the EV3 s more powerful easier to program brick Then walk through building your first bots creating more sophisticated robots with wheels and motors engineering for strength and balance driving your robot building robots that recognize colors and do card tricks and more LEGO MINDSTORMS EV3

robotics is the perfect pathway into science and technology and this book is the easiest way to get started even if you have absolutely no robotics or programming experience Explore your new EV3 kit both the retail Home and LEGO Education versions Get foolproof help with building the Track3r and other standard robots Build cars and tanks and hack them to do even more Write programs that enable your robots to make their own decisions Improve your programs with feedback Handle more sophisticated engineering and programming tasks Troubleshoot problems that keep your robot from moving Get involved with the worldwide MINDSTORMS robotics community Marziah Karch is Senior Instructional Designer at NWEA a Google Expert at About com and Senior Web Editor at GeekMom She has more than a decade of experience in instructional technology and was senior educational technologist for Johnson County Community College where she also taught interactive media development She holds a master s degree in Instructional Design and Technology and is pursuing a doctorate in Library and Information Science Her hands on technology experience ranges from 3D animation to multimedia learning content management to music video creation She has extensively explored the educational potential of LEGO robotics She is the author of Android Tablets Made Simple This book is not authorized or endorsed by the LEGO Group

Whispering the Secrets of Language: An Emotional Journey through **Project Paper On Line Follower Robot**

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Table of Contents Project Paper On Line Follower Robot

1. Understanding the eBook Project Paper On Line Follower Robot
 - The Rise of Digital Reading Project Paper On Line Follower Robot
 - Advantages of eBooks Over Traditional Books
2. Identifying Project Paper On Line Follower Robot
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Project Paper On Line Follower Robot
 - User-Friendly Interface
4. Exploring eBook Recommendations from Project Paper On Line Follower Robot
 - Personalized Recommendations
 - Project Paper On Line Follower Robot User Reviews and Ratings

- Project Paper On Line Follower Robot and Bestseller Lists
- 5. Accessing Project Paper On Line Follower Robot Free and Paid eBooks
 - Project Paper On Line Follower Robot Public Domain eBooks
 - Project Paper On Line Follower Robot eBook Subscription Services
 - Project Paper On Line Follower Robot Budget-Friendly Options
- 6. Navigating Project Paper On Line Follower Robot eBook Formats
 - ePub, PDF, MOBI, and More
 - Project Paper On Line Follower Robot Compatibility with Devices
 - Project Paper On Line Follower Robot Enhanced eBook Features
- 7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Project Paper On Line Follower Robot
 - Highlighting and Note-Taking Project Paper On Line Follower Robot
 - Interactive Elements Project Paper On Line Follower Robot
- 8. Staying Engaged with Project Paper On Line Follower Robot
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Project Paper On Line Follower Robot
- 9. Balancing eBooks and Physical Books Project Paper On Line Follower Robot
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Project Paper On Line Follower Robot
- 10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
- 11. Cultivating a Reading Routine Project Paper On Line Follower Robot
 - Setting Reading Goals Project Paper On Line Follower Robot
 - Carving Out Dedicated Reading Time
- 12. Sourcing Reliable Information of Project Paper On Line Follower Robot
 - Fact-Checking eBook Content of Project Paper On Line Follower Robot
 - Distinguishing Credible Sources

-
13. Promoting Lifelong Learning
 - Utilizing eBooks for Skill Development
 - Exploring Educational eBooks
 14. Embracing eBook Trends
 - Integration of Multimedia Elements
 - Interactive and Gamified eBooks

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