CAREER PORTFOLIO

NIÑO S. ANCHETA

COMPUTER ENGINEER

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May 5, 2022

SHEENA SILVERIAH ISORENA
Human Resource Manager
Brainsteezy
JRA Buildong, Door 4, Prk. Suaybagio
Magugpo North, Tagum City
Davao del Norte, Philippines 8100

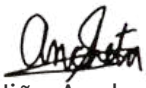
Miss Isorena:

I would like to send my great enthusiasm by submitting my application for the front-end developer junior position. I am a fresh graduate of Bachelor of Science in Computer Engineering. I have attended seminars and training that help me acquire skills that I can use in my line of job. I know my diverse skills and qualifications will make me different from other applicants.

As you will see in my attached resume, I have built my career through attending seminars and training, especially in the line of being a front-end developer. You can also see my experience as a community moderator that helps me train my soft skills in communication and teamwork, which I believe is one of the most important skills that a junior developer must acquire. Through my attended seminars and training as well as my experience, I believe that I am most ready and competitive for this position with utmost service and commitment.

I am thrilled at the possibility of being one of your team and a junior developer and would love to have an opportunity to meet you and discuss the value that I can bring to your company. I appreciate your consideration and look forward to hearing from you, I can be reached with this mobile number +63905 972 6187 and email at anchetanino2@gmail.com.

With respect,



Niño Ancheta
Applicant

Niño S. Ancheta

Computer Engineer

Tagum City, Davao del Norte
anchetanino2@gmail.com
+63905-972-6187

"A computer engineer with seminars and training attended to acquire the skills for front-end development, back-end development and full stack development."

Professional Experience

Community Support Moderator
BrandlessPH (2021 - present)

- Lead a team for the development of the company to reach more clients.
- Successfully help different types of people that is looking for technical support

Educational Attainment

BSc. Computer Engineer
University of Mindanao (2021)

STEM - Senior High School
Tagum City National High School (2018)

Programming Language

CSS
HTML
Java
JavaScript
C++

Skills

Computer Literate
Communication Skill
Leadership Skills
Organizational Skill

Seminars and Trainings

Software Design and Development Webinar
University of Mindanao (2021)

Data Security and Breach Seminar
University of Mindanao (2021)

Bagong Normal: Ligtas na Internet for All
Davao City (2021)

CONFIGURING DIFFERENCE
INSTALLING EXCELLENCE

CERTIFICATE OF PARTICIPATION

This certifies that

Niño S. Ancheta

has actively participated during the webinar entitled
"Software Design and Development Webinar"
on the 9th day of October 2021 via Google Meet.

ENGR. ROCHELLE SARMIENTO
RESOURCE SPEAKER

ENGR. RANDY ANGELIA
SUBJECT TEACHER

ENGR. STEPHEN PAUL ALAGAO
PROGRAM HEAD, COMPUTER ENGINEERING

DR. CHARLITO CAÑESARES
DEAN, COLLEGE OF ENGINEERING EDUCATION

Inter-Agency Council Against Trafficking (IACAT) XI Network

Inter-Agency Council Against Child Pornography

Presents this

CERTIFICATE OF ATTENDANCE

to

_____

during the Webinar on

Bagong Normal: Ligtas na Internet for All

Held on February 26, 2021 via Zoom.

Given this 26th day of February 2021, in Davao City, Philippines.

Raquel E. Nuñez, RSW
DSWD XI, Regional Director

2-26-2021
Bagong Normal: Ligtas na Internet for All
E-certificate

Maricar R. Casquejo, Ph.D., CESO III
CHEDRO XI, Regional Director

CONFIGURING DIFFERENCE
INSTALLING EXCELLENCE

CERTIFICATE OF PARTICIPATION

This certifies that

Niño Ancheta

has actively participated during the seminar entitled
"**Data Security and Breaches Seminar**"
on the 9th day of October 2021 via Google Meet.

ENGR. RICHARD MUAÑA
RESOURCE SPEAKER

ENGR. RANDY ANGELIA
SUBJECT TEACHER

ENGR. STEPHEN PAUL ALAGAO
PROGRAM HEAD, COMPUTER ENGINEERING

DR. CHARLITO CAÑESARES
DEAN, COLLEGE OF ENGINEERING EDUCATION

Professional Goals

Few years from now, I want to be with an excellent and experienced senior developer.

Serving my community through community service and charity.

Travel to the places I want and make sure to have my personal savings.

Healthy mentally and have a family that I can depend on.

One of my goals is to build my own company and offer services to start ups.

Is to enhance my skills and learn new programming languages.

Automated Stationary Car Robot Using RFID Module

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***Abstract*— The line follower robot is an intelligent system that can detect and follow the line on the floor. Generally, the path can be either visible to black or white line surface. The objective of the study is to create an automated robot car that will determine the location of the RFID Card. The researchers used different electronic components to assess the objectives of the study. Arduino Uno to provide the functions of the robot, Infrared Barrier Sensor Module to follow the black line tracking, L298N Motor Driver board to allow the movement and the speed of the robot, and RFID Module acts as a stop location. The result shows that Infrared Barrier Sensor Modules provide positive results in following the black line for a car robot. The car robot had detected and navigated the RFID card that acted as the stopper of the motor. With the use of the IBS modules and RFID reader the objectives of the study had been achieved. Furthermore, future researchers can improve the study through using different types of sensors and can improve the functionality of the robot by using different RFID cards as the stopper of the robot.**

***Index Terms*— Tour-Guide Robot, Autonomous Robot, Radio-frequency Identification Card, Infrared Sensors**

I. Introduction

Building autonomous robots that assist people in everyday life has been a long-standing goal of research in artificial intelligence and robotics. A tour-guide robot must be able to move autonomously, acquire the attention of the visitors and interact with them efficiently. Usually, the environment is known and accessible, but the visitors make it highly cluttered and dynamic. A tour-guide robot faces certain requirements. The collision risk must be low, and the eventual effects of a collision be harmless [1].

A tour-guide robot using Kinect technology to ease the process of tourist guides. The robot will replace the current human guide. The robot will follow the tourists wherever they go, avoiding obstacles in its way, and provide information about the place once the tourists have given it the command to do so. The robot detects different objects, thus providing information about them, using RFID tags [2]. An autonomous mobile robot, called RHINO, which has recently been deployed at the "Deutsches Museum" in Bonn, Germany. The robot's primary task was to provide interactive tours to visitors of the museum [3]. In doing so, both a software and a hardware architecture are proposed, the different modules of which, such as a laser, cameras, platform, face, and voice, among others, control the different components of the robot. Those components are in turn used by other modules designed for navigation and interaction [4].

A second-generation museum tour-guide robot called "MINERVA". It specifically addresses issues such as safe navigation in unmodified and dynamic environments, and short-term human-robot interaction. It uses learning pervasively at all levels of the software architecture [5]. Minerva employed a collection of learning techniques, some of which were necessary to cope with the challenges arising from its extremely large and crowded environment, whereas others were used to aid the robot's interactive capabilities [6].

An Interactive Mobile Tour-Guide Robot called "Urbano" a B21r platform from iRobot, equipped with a four wheeled synchro drive locomotion system, a SICK LMS200 laser scanner mounted horizontally in the top used for navigation and SLAM, and a mechatronic face and a robotic arm used to express emotions [7]. The mobile robot is equipped with a Smartphone that is programmed to detect and read information on QR codes that are strategically placed in the operating environment of the robot. The mobile robot can perform the autonomous run throughout the guide route by using real-time QR code recognition [8].

An autonomous tour-guide robot developed at the Autonomous Systems Lab called "Robo X" had to move with, against and across the flow of people to accomplish its tour-guiding task. And it should never stop moving, lest the visitor lose interest [9]. It must acquire the attention of the visitors and interact with them efficiently to fulfill its main goal: give the visitors the pre-defined tour. The environment is known and accessible, but a general approach requiring no environmental changes is better suited for a commercial product [10].

A low-cost autonomous indoor tour guide robot running on an embedded system which is the Raspberry pi 2. The autonomous navigation is achieved through wall following using ultrasonic sensors and image processing using a simple webcam [11]. CATE (Central's Automated Tour Experience). The portable terminal unit is an embedded system equipped with an RFID reader for localization, and sonar and IR sensors for obstacle detection and avoidance. CATE can guide the visitor through a predefined tour of the building or create a

new route on-the-fly [12]. Autonomous navigation of an indoor tour guide robot uses RFID module by fusing the RFID data and laser scanning measurements utilizing an extended Kalman filter [13].

A key element of both route recording and reproduction is a robust multi-sensorial localization algorithm that we have designed, which is able to combine various sources of information to obtain an estimate of the robot's pose [14]. A "Zigbee" wireless network can locate itself in the tour area using the weighted centroid technique. The Zigbee-based solution works better, and the nodes will be used for building applications [15].

The studies conducted by different researchers focused on projects in creating robots that act as a tour-guide for users which integrates location, mapping, collision avoidance, planning, and various modules concerned with user interaction and Web-based telepresence. The researchers had used different and advanced modules in creating their projects and researchers. Although there are existing tour-guide robots, automated stationary car robots, focused on using RFID and infrared barrier sensors as its main component in determining the station.

The general objective of the study is to create an automated robot car that will determine the location of the RFID card. The specific objectives of the study are the following: (1) The accuracy to follow the black line lanes; (2) To determine the stop location from the starting point using the RFID Card.

The study is significant to small business owners, software and hardware developers and future researchers.The study is significant for small business owners to help their customers to navigate stations and location of lanes. For software and hardware developers and researchers, they can use the study in determining functionality and importance of using RFID and infrared barrier sensors in creating car robots that can act as a tour-guide or location navigator.

The focus of the study is to create a car robot that gives the functionality and importance of using RFID and infrared barrier sensors. The study focuses on navigating specific stations through RFID cards and following track lines. The study is limited in navigating one RFID card. Detection and avoidance of obstacles in the track line is not part of the study. The study is also limited in acting as an independent car robot after being switched on, determining the distance from the user and car robot is not included and can be used as an upgrade for the study.

II. Materials and Methods

A. Conceptual Framework

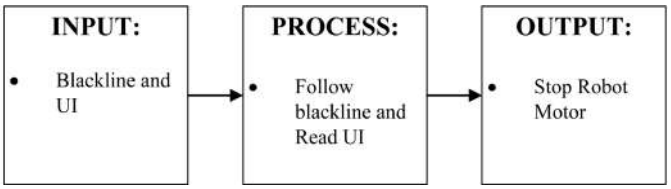

Fig 1. Conceptual Framework

As shown in figure 1, the input of the system is the blackline and the unique identification. The infrared sensors will follow the black line and unique identification that makes the car robot start running. Lastly, the output of the system will stop at the RFID Card that acts as the stop destination to indicate that the robot reached the final location lane.

B. Materials and Resources

The researchers use different electronic components to assess the objectives. First component is the *Arduino UNO*, it is a microcontroller, where modifying and optimizing the board based on the instructions and tasks the researchers want to achieve. *RC522 RFID Module Kit* that consists of RFID card and RFID tag which operates 13.56MHz of ISM band that is normally used in applications where a certain object needs to identify with a unique ID. The RFID tag has 1kB memory to store the unique data and the RFID card can both read and write those elements. The *L298N motor driver board module* was used to allow speed and direction control of two DC motor at the same time.Lastly, the researchers use *Infrared Barrier Sensor Module*, which is widely used in robot obstacle avoidance, line counting, and black and white online tracking.

C. Methods and Procedures

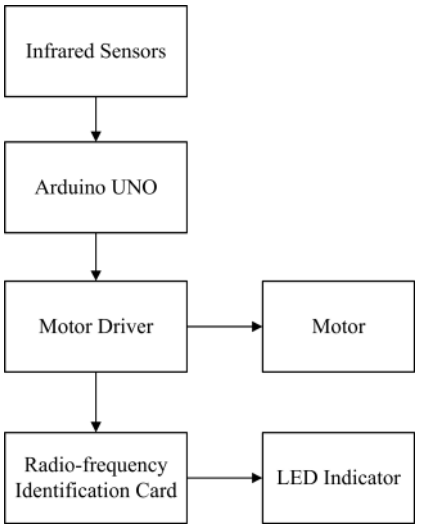

Fig 2. Block Diagram of Physical Device

Figure 2 shows the block diagram of the output system of the study, the robot will run through the detection of the black line using the infrared sensors. The sensors are connected into

Arduino UNO to provide data and will output the motor driver to stop when the radio-frequency card is detected. The light-emitting diode will display a green light when the robot is running and red light when the robot reaches the location.

III. Results and Discussions

A. Follow the Black Line

Table 1. THE ACCURACY TO FOLLOW BLACK LINE LANES

Lanes	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5
Lane 1 (28.75 Inches)	✓	✖	✓	✓	✖
Lane 2 L-Shape (28.4 inches)	✓	✓	✓	✖	✓
Lane 3 U-Shape (29 inches)	✓	✖	✓	✓	✓
Lane 4 Box Shape (28.4 inches)	✓	✓	✓	✖	✓

Infrared Barrier Sensor Module is used in the study for the automated robot car to follow the black line lanes. The accuracy of the automated car robot depends on the wideness of the black line lane that helps to determine the distance of the sensors from each other. There are three out of five trials that give positive results on the testing for lane 1 with 28.75 inches, and four out of five positive results are for lane 2 L-shape with additional 28.4 inches, lane 3 U-shape with additional 29 inches and lane 4 Box-shape with additional 29.4 inches. The results of the testing process only shows that the proposed project can function or run with different types of lanes as long as it follows black line. Errors can be distinguished based on the power of the source that affects the speed of the motor and the distance of the sensors from the black line.

B. Determining the RFID Module as indication that the robot reached the destination

Table 2. Reading the RFID Module

	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5
Read the RFID Module	✓	✓	✓	✓	✓

As shown at Table 2, the automated robot car successfully determines the RFID Module within 5 trials. The researcher had used four unique RFID cards and one of them acted as the stopper of the motor. Researchers tested the functionality of the RFID reader by letting the car motor pass all the four RFID cards. The test shows that 5 out of 5 trials conducted by the researcher gives positive results which gives the functionality of the code and RFID reader high results.

IV. Conclusions and Future Works

Line following is one of the most important aspects in making a robot project. A line following robot is an autonomous robot which is able to follow either black or white line. It is designed to move automatically and follow the made plot line. The study was able to obtain the accuracy of the automated robot car to follow the black line lanes and to determine the stop location from the starting point using the RFID Card. With the use of the different electronic components it is effective to assess the general and the specific objectives of the study.

To further improve the study, the use of a high quality battery can affect the performance of the car motor. Detection and avoidance of obstacles in the track line can also improve the functionality of the project. Lastly, future research can also use different types of sensor in making the car motor and determine the distance of the user from the car robot to make sure that the user follows the robot.

Acknowledgment

First and foremost, praises and thanks to God, the Almighty, for His showers of blessings throughout the research to make the study possible. The researchers would like to extend their heartfelt gratitude to the following people, who guided them and provided support that made the paper attainable. To their advisor Engr. Stephen Paul Alagao MSCpE, for the knowledge and expertise in teaching the fundamentals of microprocessor. To their parents, Mr. and Mrs. Ancheta, Mr. and Mrs. Dumancas, and Mr. and Mrs. Ordas, for their unending financial, moral, and spiritual support extended to the researchers. Recognizing also the effort of Engr. Jetron Adtoon MSCpE, as panel who gave time and shared his professional expertise in validating the proposed project.

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Appendix

A. *Hardware Implementation*

The development of automated robot car that will determine the location of RFID Module.

Figure 3. Hardware Implementation

UNIVERSITY OF MINDANAO

COLLEGE OF ENGINEERING EDUCATION

MATINA, DAVAO CITY

Electronic Library Mapping

USERS' MANUAL

Proponents:

Ancheta, Niño S.

Ordas, Jethro Joshua A.

Sitoy, Carlo Angelo Y.

AUGUST 2020

How to Login into the Program:

1. Open the software program.
2. Click the administrator button.

3. Type “admin” for default user and “12345” for default password (this is an Administrator account).
4. Click the Log In button.

Main Command Menu:

- **Reset –** Button for resetting while filling-up.
- **Delete –** Contain command for deleting books.
- **Add** – Contain command for adding books
- **Update** – Contains command for updating details.
- **Cancel** – Button for returning to the previous window (also applies to other buttons with the same name)

- **Search –** Contain command for searching books.

“Add” Command

(Only available for admin users)

- Click Add button to add a specific book.
- Fill-up necessary information about the book.
- For Book Profile, click “Browse button” to add a cover photo for book.
- For Shelves, click the grid button to select the specific category of the book.

- For Levels, click the rid button to select the location in the shelves, the levels compose a three part of the shelves which is Top, Middle, and Bottom part.
- For Floor map, click the browse button to add the floor map photo.
- Click add button to add a book, and Configuration dialog will pop-up to confirm your adding of book.

"Update" Command

(Only available for admin users)

- Click the Update button to modify books on the list.
- Double click the title of the book which you want to update.
- Click the update button after you finish modifying.

"Delete" Command

(Only available for admin users)

- Click the Delete button to remove a specific book.
- To delete book, click the book in the list.
- Click the delete button to confirm.

“Reset” Command

(Only available for admin users)

- Click reset button if you want to start over fill-up necessary information in the book.

“Search” Command

(Available for any users)

- Click the Search button to find book.

- Type any title of the book or the author of the book or some keywords to find a book.
- Click the Magnifying button to search a book.

QUESTIONS ON HOW TO USE

User

What are the different types of user accounts and their privileges?

Admin

- Has all privilege available. Can add, delete, reset and update the list of books in the library.

User

- They can access freely. Search all the books available on the library

Accessing the Software

Login into the Program:

1. Open the software program.
2. Click the “Administrator” button (If you are the Admin)
3. Type “admin” for default user and “12345” for default password (this is an Administrator account).
4. Click the Log In button.

Adding books:

1. Click “Add” button to add a specific book (Admin only)
2. Fill-up necessary information about the book.
3. For Book Profile, click “Browse button” to add a cover photo for book.
4. For Shelves, click the “grid” button to select the specific category of the book.
5. For Levels, click the “rid” button to select the location in the shelves, the levels compose a three part of the shelves which is Top, Middle, and Bottom part.
6. For Floor map, click the “browse” button to add the floor map photo.
7. Click “add” button to add a book, and Configuration dialog will pop-up to confirm your adding of book.

Updating books:

1. Click the “Update” button to modify books on the list (Admin only)
2. Double click the title of the book which you want to update.
3. Click the “Update” button after you finish modifying.

Deleting books:

1. Click the “Delete” button to remove a specific book. (Admin only)
2. To delete book, click the book in the list.
3. Click the “delete” button to confirm.

Resetting books:

1. Click “reset” button if you want to start over fill-up necessary information in the book.

Searching books:

1. Click the “Search” button to find book. (For both users)
2. Type any title of the book or the author of the book or some keywords to find a book.
3. Click the “Search” button to find the book.