UNIVERSITI TEKNOLOGI MALAYSIA

SCHOOL OF COMPUTING

Faculty of Engineering

SECP1513 – TECHNOLOGY & INFORMATION SYSTEM

ROBOKAR : ROBOT PROGRAMMING WORKSHOP

SECTION : 08 – 1SECR

COURSE NAME : BACHELOR OF COMPUTER SCIENCE – COMPUTER NETWORKS & SECURITY

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DATE OF SUBMISSION: 19th NOVEMBER 2019

Table of Contents

Introduction

This official visit was carried out regarding on our task that was given to us. We need to write a report that should address the requirements in IT correspond to the workshop that we joined which is RoboKar Programming Workshop held by crew members of RoboKar Club in Universiti Teknologi Malaysia (UTM). All of the guidelines and rubrics of the report had already being sent through WhatsApp group from our lecturer, Dr. Haswadi for us to follow exactly what are the writing requirements in order to achieve maximum score on this report.

The workshop was held on 8th November 2019 at Active Learning Lab, Level 3, N28, School of Computing, Faculty of Engineering UTM Johor Bahru during our lecture period of Technology and Information System. Supposedly this workshop was initially an industrial visit. However, there are some unexpected problem there, thus brought us to this workshop. Here, we were instructed to be at the venue as the organiser already set up all the required kits for the workshop to run.

Details of The Visit

Followed the tentative given, Robocar workshop that held on 8 December 2019 at Active Lab Learning, Level 3, N28, School of Computing will started after the arrival of participants approximately at 2:00 p.m. Before the workshop, we have been given an opportunity to create a group of six participants. The group will be assigned to sit with their group members. The registration took place after that to record the participation.

At 2.20 p.m. sharp, the workshop started with introduction of each facilitators and their club. Then, a breafing about robocar by Nurul Nazihah binti Jamal and Muhammad Irsyad bin Kamil Riadz to achieve the objectives of the program. Next, participant will be given an hour to try and develop their own program. They will be given an hour to run a complete program into the robocar and practice the effectiveness using the tracks prepared.

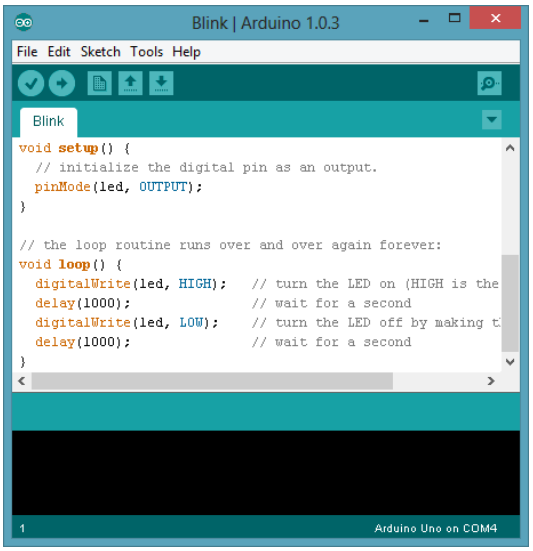
Then, a competition held at Lobby, Level 2, N28, School of Computing promptly at 4.00 p.m. to decide the fastest cars. Finally, award giving took place before closing ceremony at 4.30 p.m.

About

The RoboKar club activities started in the year of 2012. Since then, more than 1000 participants had joined the activities done by the RoboKar club. These participants range from primary school students to University students although most of the participants are from primary and secondary schools. The main purpose of these activities is to train and expose students to programming and execute instructions that can be followed by the robots or machines to accomplish an objective. The RTSE subject is part of the RoboKar club. RTSE stands for Real Time Software Engineering which is a subject that will be taken by the students who take Software Engineering during their fourth year of study.

Coding and Learning on How to Program a RoboKar

I think you are wondering how to code that car? the easiest way to programme this car is with Arduino software which is free and open source and also available for Windows , Mac , and Linux users. Here is a screenshot of the program.

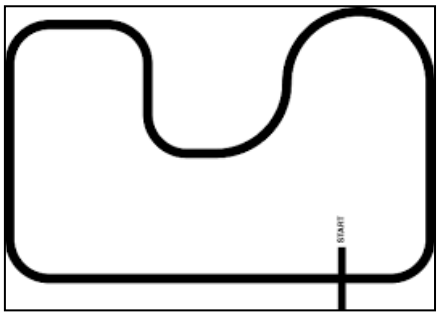


The white area is where you can write the code, and the program language that Arduino platform uses is C++ , it is a powerful language and kind of difficult to learn .

C++ program is written as regular text , Arduino call this program sketches , then a compiler reads the sketch and converts it to machine instructions that Arduino understands. the black area at the bottom is where status information appears , for example : if the code has an error you will see the details in this area.

RoboKar Competition among Workshop's Participants

Students will compete using their own respective autonomous car to pass through a route with several checkpoints. Inside the competition, a mock-up environment of a race track will be made, and the students need to develop their own robotic car solution and programming to finish the track in fastest possible time. Below one of the samples of track that is used in our competition during the workshop.



To determine the winner, the group has to finish the track in the shortest amount of time among other contestants. For our competition, there were several rules that we had to follow which are:

Rules and Regulation

- Place RoboKar on the track, press the button once announcement is made.
- It is forbidden to touch the RoboKar once it is moving (unless authorized by referee).
- Each RoboKar is given 3 minutes to complete the track.
- Any groups who does not comply with these rules and regulations will be disqualified immediately.
- Referee's verdict is final.

Thus, we need to follow each rules and regulations to ensure the competition is fair and square. We had learnt a lot while having a lot of fun while participating in the workshop.

Reflection

My main goal for this subject is to learn on each purposes of the current technology so I will be able to utilize each device or system that has been invented to make daily life easier. Therefore, I will be more appreciative towards the existence of technology thus can broaden our way of thinking so I can invent new technology to solve various problems in the current days.

To improve my potential in the industry, I realized that I had to improve my programming skills to control the machine around us to solve the daily problems. Other than that, I should learn from my mistakes in this workshop that caused my team to lose, so I can be better in the future. Finally, I also need to learn more about how robots are made so it can be utilized for later.

Participating in this RoboKar workshop surely help me to understand on how to use the Arduino IDE. I had learnt a lot of knowledge that is related to this subject such as how the sensors underneath the car can help it to keep itself on track. I also had learnt that each different programming coding for the autonomous car can produce different results although it seems similar in the first place.

('Afif Azhan, 2019)

I think this club is interesting and have a lot of activities , and coding the car was great . It is like a new experience I love it , and I hope to try it again. But there is one thing that I don't like it , the book of instruction was just in Malay , I think that they should make an English version.

(Ammar Khaled, 2019)

To this present day, it good and crucial for these young generations to explore more on digital and computer fields. In such, a programming language may expose them to the real world out there when entering working stage as many of the tasks may require at least a simple programming skills.

(Iskandar, 2019)

By participating in the RoboKar activity, I was able to know how Arduino works by learning the code used in programming the machine. I also learned about the importance of programming language especially in this era where many works involve giving instructions to machine by coding using programming language.

(Haziq, 2019)

I am pursuing to secure the networking so the country will free from any anxiety of being threated of data leaking and misused.

The knowledge and learning experiences from the visit greatly enhance my potential and productivity for the industry.

The action that I need is to gain more and aware of my weakness so I can planned better and productively.

(Nazreen, 2019)

Attachments