

# Jefri Bolkiah College of Engineering BRUNEI



Robotic contests at international level are not new. There have been various international robotic contests, and ABU ROBOCON is one. Robotic has already become a very commonly used technology. It is therefore being widely studied in many countries in the world. Vietnam, as a developing country faced with technological and financial constraints, has proven to have mastered the field of Robotic when it emerged as the Champion in ROBOCON 2002.

Last year, 2003 was the first time Brunei Darussalam participate international Robotic Contest (ABU ROBOCON) that held in Bangkok, Thailand. Radio Television Brunei (RTB) identified Jefri Bolkiah Engineering College as a potential participant in this contest with the help of Science, Technology and Environment Partnership (STEP) Centre which under the Ministry of Education.

This year, two colleges namely Jefri Bolkiah Engineering College and Maktab Teknik Sultan Saiful Rizal were interested on this contest. On the 20<sup>th</sup> April 2004, with the strong support from Oil and Gas Discover Centre (OGDC), the STEP centre organized the robot competition between the two colleges for selecting the representative of Brunei Darussalam in ABU ROBOCON 2004. The selection was made based on the robotic performance and ability. The experienced of joining last year ROBOCON, Jefri Bolkiah Engineering College won the competition and was selected again to represent Brunei Darussalam in ABU ROBOCON 2004.

This is the second time we become representative for Brunei Darussalam to participate ABU ROBOCON. The first time was in Bangkok, we have gained knowledge about robotic and identified the weakness of our robotic from observation during the competition and also comments from other participants. We try to show good performance during the contest so that we will have same standard as other participants. Looking at the sophistication of the Robots built by other countries during the ROBOCON 2003, it was realized that we are lagging behind in Robotic technology, expertise and experience. However, the desire to enter the arena of such interesting and advanced engineering competition had overwhelmed the fears and worries. We enthusiastically taken up the second challenge and tried our best to make our country proud of us.

The process of making the Robots was quite challenging since we tried to design our own Robots by following the theme of this year ROBOCON that is "Reunion of Separated Lovers, Gyeonwoo and Jiknyeo" The aim of this contest is to accomplish REUNION by completing the unfinished 'Ojak Bridge' and carrying the 'Golden Gift' by

Automatic Machine from 'Gyeonwoo Zone' to 'Jiknyeo Zone'. And this theme has much different than the last year theme.

### **Main Problems**

***Time constraint:*** Most teams in the other countries have been working on Robotic over the past few years, and they have started working for ROBOCON 2004 since August 2003 when the theme was announced. We have start early of this year. Added to this, it is also important to avoid interrupting our classes and studies. Therefore, we had been working at odd hours after college time until late at night. In this case, we have to plan before we start the project.

***Lack of experience and expertise:*** In our country, we are lack of experience and expertise in building such Robot because not much exposure about Robotic technology is applied. A lot of research and studies have taken place in order to make up for the deficiency in experience and expertise.

***Great difficulty in finding parts:*** As you all know that Brunei is a small country and there are only few shops in Brunei that supply electronic parts but they didn't stock the parts, so we have to order the component for the circuit (such as IC's, resistor, transistor, etc..) and materials of Robots (such as motor, screw, tires, etc...) through local company or online. They require considerable amount of time to arrive and that wasted our time to finish the project.

***Funding:*** The organizer, ABU, provided a fund of USD1000 for the team. This amount would not be sufficient due to the fact that the components and materials of Robots are not cheap when imported and further to that, other costs would be incurred in the progress of the project such as food and transportation for us. To overcome this problem we have to control our budget and search for the cheapest one available.

### **Positive Influence**

By doing this project, we can gain our knowledge about the robotic technology as well as encouraging more students to stimulate interest in Robotic besides joining ROBOCON. Moreover, the members and the pit crews that joined ROBOCON can teach the young students about Robotic technology and it also can be reference for future development of Robotic technology in Brunei so that Brunei is not left behind in field of Robotics.

On the other hand, we can learn on how Robots are made and how it operates or functioning. It also provide us the knowledge on learning how to design and construct the circuit such as PIC (Programmable Integrated Circuit), Motor circuit, Sensor circuit, Limit Switch Circuit and etc..

Furthermore, we can meet lots of people from Asia-Pacific country to make friends and share among each other about their technology in Robotics. We can ask them that how they built their Robots and what are they capable of.

### **International Competition**

Participated the ABU ROBOCON in Seoul, Korea was interesting where all accommodation were well-prepared by the host organizer, KBS (Korea Broadcasting System) and we are very proud to be selected as one of the participants.

From this experience, we will try to improve our design and construction and using better technologies to built other robots. Looking at other countries sophisticated Robots; we see that ours are still way far behind. I really hope that we could improve ourselves so that we can be as same level as the developed country and this will bring Brunei step forward in Robotic technology.

Other than that, it is nice to feel the environment of another country and meeting people with different cultures and characters besides then making more friends.

### **Advice or Message To Juniors**

- Before creating a robot you have to design it then you construct.
- Done your work on time where punctuality should be emphasized.
- Plan, that is arrange your time wisely & you have to sacrifice your time
- Keep on trying and training on your Robots until you satisfied with your end product.
- There are no harm if you keep on trying and training.

## Team Members



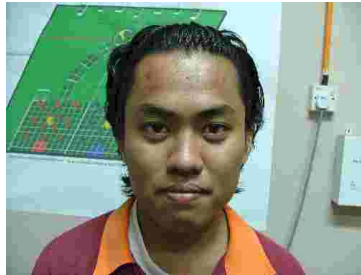
Norjeme Bin Jenek  
(Supervisor of Robocon 2004)



Zulfarizal Bin Hj Zaini  
(Asst. Supervisor of Robocon 2004)



Mohd. Haris Bin Mohd. Sabli  
(Robot Constructor)



Salfarizal Salleh  
(Circuit Designer)



Liong Hong Hwa  
(Programmer)



Hj Mohd Shamsul Dilah Hj Abd Manan  
(Pit Crew)



Muhd Hasrin Bin Suhaili  
(Pit Crew)



Mohd. Hakim Bin Mohd. Sabli  
(Volunteer)

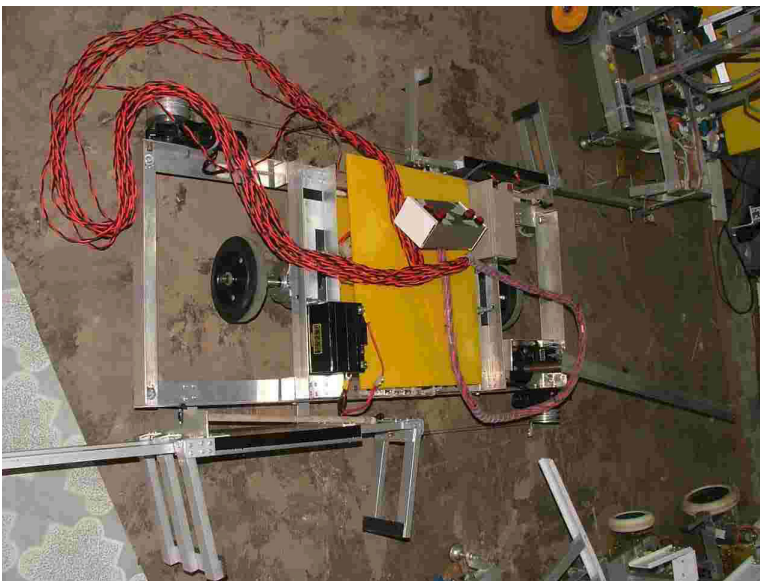


Yee Soon Keong  
(Volunteer)

## Robots



## Automatic Robot



## Manual Robot

Authorized by: Mohammad Haris Bin Mohamed Sabli  
Major : National Diploma in Electrical & Electronics Engineering  
Faculty: Electrical & Instrumentation Department  
Institute : Jefri Bolkiah Engineering College  
Team name : SAMOT  
Team member: Mohammad Haris Bin Mohamed Sabli  
Liong Hong Hwa  
Salfarizal Bin Haji Salleh  
Team instructor: Norjemee Bin Jenek