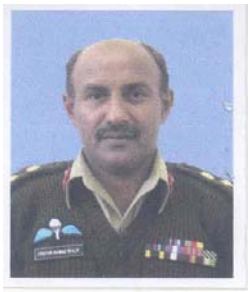
National Engineering Competition (NEC): An Introduction

Editors

STEM Careers Project also launched a pilot scale National Engineering Competition (NEC) in fall 2004. Six teams from Rawalpindi, Islamabad, Lahore, Jamshoro and Topi participated in this Competition. The competition is aimed at giving recognition to the final year engineering students and their supervisors. The Competition entails sending a theme concerning problems of national importance and encouraging engineering undergraduate students to come up with their innovative solutions. In year 2005, NERC was organized jointly by the STEM Careers Project and the College of Electrical and Mechanical Engineering (EME), National University of Science and Technology (NUST), Rawalpindi. Sixty two teams from eighteen universities and engineering institutes from all over Pakistan participated in this Competition. All participating teams were to design fire fighting robots that could extinguish candles placed in a particular arrangement in a specified arena. Each candle carried specific points. Winning teams were decided on the basis of maximum points scored in minimum time. NERC-2006 was also conducted in which students followed the theme of potting balls in the baskets. It was also a success. In 2006, STEM Careers Project also launched Design Build and Fly Competition (DBFC) in collaboration with GIK-I. DBFC is aimed at inviting teams from all over Pakistan to build flying machines based on some predefined conditions and limitations. DBFC-1 was a success due to which DBFC-II was launched and conducted in March, 2007 with a great success. NERC-2007 was held from 24 to 27th October, 2007. 62 teams participated in the event in which the team from EME NUST won showing its excellence in robotics and Mechatronics departments. Seeing the success of these events STEM Careers Project is planning to launch more engineering competitions in collaboration with other engineering universities.

College of E & ME, NUST, Rawalpindi

Brig Dr Akhtar Nawaz Malik, Dean Department of Mechatronics Engineering, College of E & ME NUST

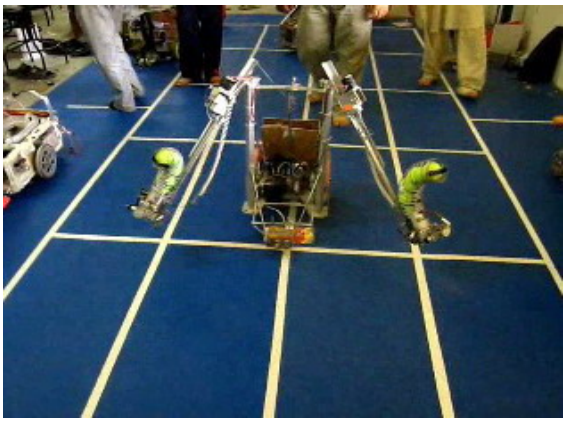


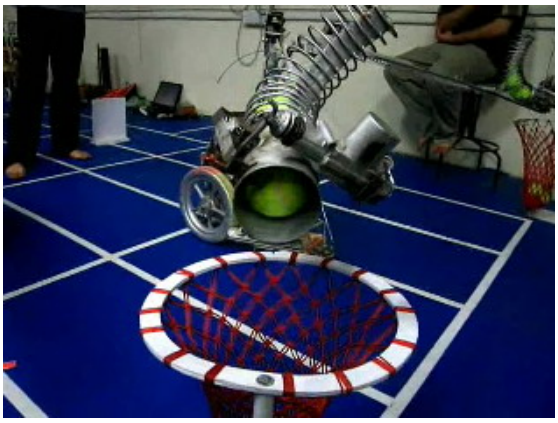
Lt Col Dr Javed Iqbal, Coordinator NERC

Ghulam Ishaq Khan Institute of Engineering Science and Technology (GIK-I), Topi, Home Institute for DBFC →

Dr Muhammad Abid, Dean Faculty of Mechanical Engineering, Coordinator DBFC, GIK-I ←

Dr Junaid Mughal, Assistant Professor, Coordinator DBFC, GIK-I →





Some Robots and Flying Machines designed by young engineers

NERC: An Introduction…..

Ovais Zuberi

It was the 14th of October 2003; the second day of my engineering education at the department of Mechatronics, College of E&ME, NUST. I had come with a lot of hopes and expectations to continue doing what I had started during my A-levels: building robots.

At the orientation session, our head of department Dr. Akhtar Nawaz Malik augmented my interest by telling our class that we would be making a lot of robots during the time we spend here. I wanted to start doing that right away, but it wasn't till the end of the semester that an opportunity came across. A couple of seniors, Atif Waqar (batch of 2001) and Khurram Yusuf (batch of 2000) told me about a competition known as the Fire-fighting Robot Contest (FFRC). I was told that I should ask the Head of Department and Dr. Javaid Iqbal, Coordinator NERC if I wanted more information. After doing that, I gathered my class fellows and asked them to join me in this seemingly impossible endeavour.

FFRC had its humble beginnings in the September of 2003 when Dr. Javaid Iqbal thought of organizing a contest for his students in which they would develop a Fire- Fighting Robot Competition. He also invited a couple of robot hobbyists to take part in the locally arranged contest. FFRC 2003 was such a success that the Head of Department Dr. Akhtar Nawaz decided to organize it the next year on a much larger scale.

FFRC 2004, the All Pakistan Fire-Fighting Robot Competition 2004 was organized by the Mechatronics department in August, 2004. That year, the contest comprised of 22 teams coming from various engineering institutes of Pakistan. The goal was the same as that of last year: to extinguish candles in an arena using a pre-programmed robot.

The concept of FFRC grew further in 2005 when the STEM Careers Project joined hands with the Mechatronics Department to take FFRC to a higher level. The name was changed to NERC: National Engineering Robotics Contest. A huge out-reach campaign was started and all registered engineering institutes were invited to send in their teams for this contest. An overwhelming response was seen with 62 participating teams from 18 different institutes of the country.

The next year was when, after a long wait, the NERC theme was changed for the first time. Now the robots were supposed to pot balls in four different baskets. Once again an overwhelming number of students and institutes participated in the competition, leading to a heated, high-tech brawl.

Since I have participated as an organizer and as a contestant in three of the four NERCs that have been held so far, I feel it my responsibility to tell everyone how amazing this contest really is. The atmosphere it creates, especially when the contest finale is about to start really boosts one's morale. A couple of hundred budding engineers are working day in and day out at the campus of the College of Electrical and Mechanical Engineering. The labs are open 24 hours, some people are testing their robots, others are fixing them, and some are trying to reduce their run time. The atmosphere is so charged that one can't even think of sleeping.

The contest also induces friendly rivalries amongst teams. NUST is always a strong contender in the contest, with a couple of outstanding robots. GIKI and Air University are the other strong sides. During the preliminary runs, the teams get to see how the others' robots are performing. The showdown is on the Finals, the last day of the contest, where more than six months of tireless efforts are put to the ultimate test.

I would encourage all NSTC Alumni, especially those who are in engineering fields, to take part in this amazing contest. I have felt proud of our country after seeing what our engineers are capable of. I would insist that you see, or better still, take part in and feel that for yourself!

(The author, Muhammad Ovais Zuberi participated in NPTC-7 during his A-levels, after which he started his engineering in Mechatronics from College of Electrical and Mechanical Engineering. There he participated in National Engineering Robotics Contests, three years in a row from 2004 to 2006. He was also part of the organising team for these contests. In his final year he was part of a research group which developed an Unmanned Ground Robot for bomb disposal applications. Currently, Ovais works for Unilever Pakistan as a Graduate Trainee Engineer.)

Winner of NERC 2005 receiving winners cheque from the Chief Guest, the then Chairman PAEC Mr Parvez Butt

Flying machines competed in DBFC 1