

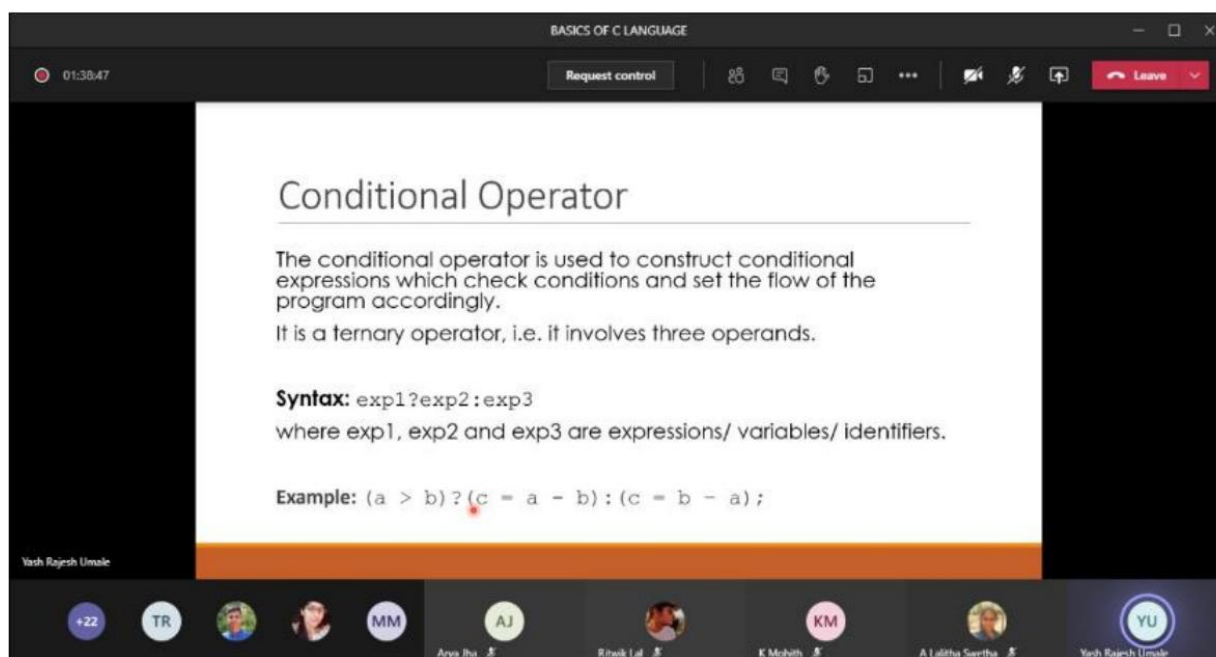
Hands-on Workshop on Webots Robotic Simulator

Day 1 : BASICS OF C PROGRAMMING

Hands-on workshop on Webots Robotic Simulator is a three-day event organized to introduce participants to the world of robotics through simulation and C, the programming language used to build various software's (including 3D robotic simulators such as Webots!). At the end of the three-day event, they will not only be taught to code from the grass roots but also to apply these concepts to simulate their robots.

ACROM-RAS, in collaboration with the Forum for Aspiring Computer Engineers (FACE), conducted Day 1 of this three-day event on Sunday, 24th January 2021, from 4.00 to 6.30 pm. The event was intended mainly for students from first and second years. It was organized to teach students the basics of C, which is a pre-requisite for the second and third day of events. The event had about 30 participants.

The event commenced with Yash Rajesh Umale, the Secretary of FACE, introducing the language and its importance in the digital world. Yash started off with the fundamentals, defining what programming is and its applications in the real world. Program is essentially a set of instructions, thus he moved on to explaining what instructions are and how they are written. Yash also explained the differences between a compiler and an interpreter including the process of generating an executable file. Yash then moved on from the basics into the syntax of the language and also touched upon the various data types, variables, operators and constants present in C. He explained how to implement all these concepts using examples and also gave side notes about their applications.



The session was then taken over by Ritwik Lal, Joint secretary of FACE, who introduced the concept of flow control and branching statements like if-else, switch etc. and explained them using examples. He then spoke about the various built-in functions and where they are generally used.

BASICS OF C LANGUAGE

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Request control

Switch Case

Switch Case: It checks the value of expression against the case values. If condition matches the case value, control is shifted to that point.

Syntax:

```
switch (Expression)
{
    case exp1:
        statement;
        break;
    case exp2:
        statement;
        break;
    default:
        Statement;
}
```

Break: By using this, the loop is immediately terminated and the statement existing right after the loop will be executed.

Default: It is useful whenever there is no case value which is satisfying the given condition.

Ritwik Lal

+22 TR MM AJ KM YU Ritwik Lal

BASICS OF C LANGUAGE

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Request control

Flow Control



- Enables us to specify the flow of program control.

Three types of flow control statements:

- Branching / Decision making statements
- Iterative / Looping Statements
- Jumping Statements

Ritwik Lal

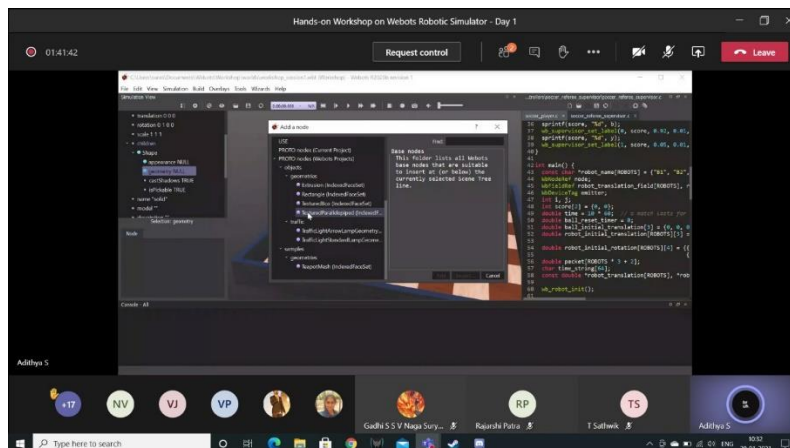
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The event concluded with a Q&A session, where Yash and Ritwik answered all the questions that the participants had during the session. This event was the first day of a 3-day event where the 2nd and 3rd days will be conducted in the coming week. The participant's review of the session was constructive and they were very excited to attend the next 2 days of the events.

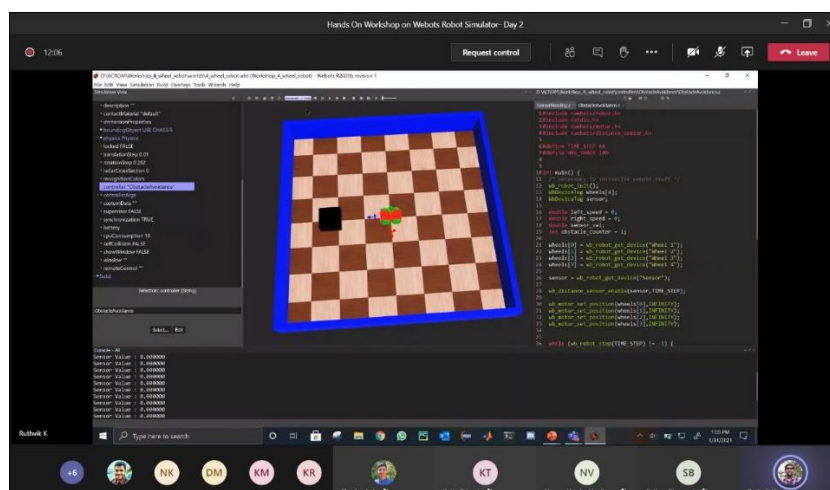
Day 2 & 3: WEBOTS HANDS-ON WORKSHOP

Webots Robot Simulator Workshop is a 2-day event that focusses on Virtual Robot creation using Webots simulation software which allows one to hone their skills and experiment endlessly. It is a part of the 3-day Hands-on Workshop on Webots Robot Simulator conducted by ACROM-RAS, the Robotics club of our college in collaboration with FACE (The Forum for Aspiring Computer Engineers). The day-2 and day-3 of the workshop were conducted on the 30th and 31st of January, 2021 respectively.

The workshop mainly focussed on designing of a mobile robot using sensors and programming it using C language. The pre-requisites for C-programming have been taught during the day-1 of the workshop by FACE. The day-2 focussed on the design of the mobile robot followed by day-3 that focussed on sensor design and programming the robot.



Day-2 started off by Katta Tejasvi and Aditya S defining an object. They then proceeded towards explaining how to design solids and their components in a simulation environment. Katta Tejasvi then explained the physics behind the working of a robot. By the end of day-1, students could design the hardware for their mobile robot. The session was conducted from 9:30 am to 1:00 pm with around 25 attendees. The day concluded with a Q&A session where students asked various questions that were then answered by the speakers.



Day-3 focussed on the sensor design and the programming of the mobile robot. The session was taken by Tarakaram and Ruthvik K. The designing of various sensors and their applications have been explained. The session then proceeded towards designing the software for the mobile robot. The programming of the mobile robot and the sensors using C-programming has been explained. The

session was conducted from 9:30 am to 1:30 pm with around 19 attendees. There was a Q&A session at the end. Finally, the session concluded with Tarakaram enlightening everyone about the various opportunities and projects that can be done using the Webots Software.

The feedback for both the days has been collected from the attendees and it suggested that the attendees had a lot of insight and understanding from the workshop.