

Apptics

INTRODUCTION:

Bored of playing games on your Android phone? Want to do something cool with it? Here's a chance to design your own Android controlled robot using the simple ideas of Android App Development, Bluetooth Communication and a pre-built bot model.

PROBLEM STATEMENT:

The problem is to design a Bluetooth enabled Android app to facilitate navigating a robot, barring obstacles to a destination.



Details:

A pre-built bot equipped with Bluetooth will be provided at the time of the event. The app will need to send data to the Bluetooth Module on the bot in the prescribed format.

The format of the message would be P<ocr value of motor A><ocr value of motor B>D<4 bits to control the two motors A and B>.

The OCR value will control the PWM of the motor and thus its speed. It must be from 000-255. Note that the OCR value must be of three digits. For eg. 012 instead of 12.

The value of 4 bits will decide the direction of the robot. Refer to the following table for the direction of movement of motor.

A1	A2	Motor A	B1	B2	Motor B
0	0	Stop	0	0	Stop
0	1	Move Forward	0	1	Move Forward
1	0	Move Backward	1	0	Move Backward
1	1	Stop	1	1	Stop

For eg. P127092D0010 is a valid message whereas P127092D0210 is not.

The participants will have to design the following features of the device:

Compulsory Features:

- Implementation of a simple keypad with four keys to provide respective directions to the bot in Android.
- Successful communication between Android app and pre-built bot.

Additional Features:

Apart from the compulsory features, various additional features can be added to the circuit like

- Implementation of various other directions.
- Controlling the speed of the bot.
- Using motion sensors of Android Phone to control the bot.

These are just some of the additional features. Apart from these, any other innovative additional features can be implemented.

RULES AND REGULATIONS

Eligibility & Team structure

- Students belonging to any batch or program are eligible.
- Team strength should not exceed 3.
- There are no restrictions on number of teams from a pool. Though all members of a single team should belong to the same pool.

General Rules

- Use of pre-built apps is not allowed. You must provide the source code of the app developed.
- The software written should be original and not copied from any other source. You can however use libraries.
- Judges decision shall be final and binding on all.
- Judging shall be subjective.
- All of the above rules may be subject to change as they deem fit. Change in rules, if any will be highlighted on the following links:

Electronics Club Website: <http://students.iitk.ac.in/eclub/>

Takneek Website: <http://students.iitk.ac.in/takneek/2012/>

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