

First Ever Android
Competition at
IIT Kanpur

Apptics - Takneek 2012

Nikhil Gupta

Overview

- o Android – an Open Source Operating System
- o Java Programming Language
- o Tools:
 - o Android SDK
 - o Eclipse IDE
 - o Java JDK



Problem Statement

Design a Bluetooth enabled Android app to facilitate navigating a pre-built robot, barring obstacles to a destination.

Compulsory Features

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

Protocol for Communication

- o Format of the message

P<ocr value of motor A><ocr value of motor B>D<4 bits to control the two motors A and B>.

- o Example: P127092D0010

- o 127 – OCR value of motor A

- o 092 – OCR value of motor B

- o 00 – Direction of motor A

- o 10 – Direction of motor B

OCR value

- 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 of three digits. For eg. 012 instead of 12.

Direction 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

Our Approach

- ◊ Laying out the screen
- ◊ Implement listeners for various components on the layout like buttons, sliders, etc.
- ◊ Implement the logic
- ◊ Send the data to the bot via Bluetooth

Activity

- A single screen in an android app
- An app is composed of one or more activities
- Changing an activity:
 - Hardware buttons
 - Software (Coding)

Uses of an Activity

- To provide the layout of a single screen in your app
- To implement the listeners for various components of the layout
- May be used to implement logic

Bluetooth Communication

- Built upon BluetoothChat Sample.
- UUID for the Bluetooth module :
00001101-0000-1000-8000-00805F9B34FB
- Layout of BluetoothChatActivity.java can be modified as per your layout.
- Logic can be implemented in BluetoothChatActivity.java or an external java file.

Additional Features

- Implementation of various other directions.
- Controlling the speed of the bot.
- Using motion sensors of Android Phone to control the bot.
- Apart from these, any other innovative additional features can be implemented.

Judging Criteria

Parameter	Weightage (%)
Time Taken	30
User Interface	20
Ease in Communication	10
Layout of App	15
Extra Features Implemented	25

Questions?

Contacts



Anurag Dwivedi
156 / Hall 2
anuragdw@iitk.ac.in
8960482723



Nikhil Gupta
138 / Hall 3
nikgupta@iitk.ac.in
9005671866



Rudra Pratap Suman
F107 / Hall 5
rpsuman@iitk.ac.in
9450003098

Takneek Website :

<http://students.iitk.ac.in/takneek/> > Flagship events > Apptics

FB Group : www.facebook.com/eclub.iitk