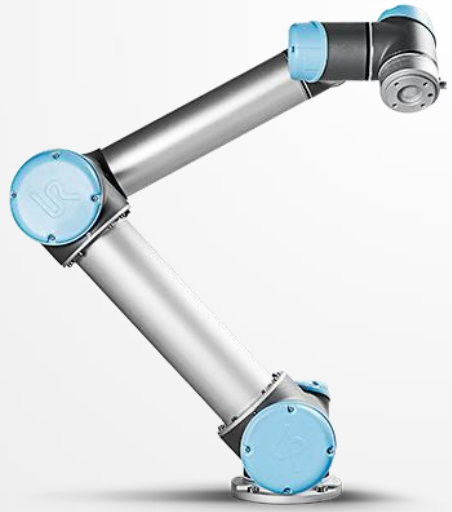
CONTROLLING OF UNIVERSAL ROBOT USING ANDROID APP



GUIDE

DR.B.VINOD

JASSEM MOHAMMED S 14R215

KARTHIKEYAN P 14R217

NAVEEN S 14R228

PARTHASARATHY K 14R231

OBJECTIVE

To control universal robot wirelessly using android application

Wireless – through wifi

Literature Survey

S.No	Journal name, Article title, Year of publication, Volume and issue number	Observation
1.	**COMPANY NAME:** Automatika **TITLE:** Remote Monitoring and Control of Industrial Robot based on Android Device and Wi-Fi Communication **AUTHOR NAME**: Maja M. Lutovac Banduka **ISSUE DATE:** 10 October 2015	This paper describes about the the simplicity of interaction and the improved access. The simplicity of interaction is provided through the simple, single click execution of complex robot tasks and algorithms using the touch screen interface. Complex motion instructions for defining robot tasks can be defined and appointed within the touch screen programming GUI.
2.	**JOURNAL NAME:** International Conference on Robotics in Education **TITLE:** Using the Android platform to control robots**.** **AUTHOR NAME:** S. Goebel, R. Jubeh, S.-L. Raesch, and A. Zuendorf. **ISSUE DATE:** 2011	This article pointing out how to use android platform to control robots wirelessly. It deals with both Bluetooth and wifi.

Literature Survey

S.No	Journal name, Article title, Year of publication, Volume and issue number	Observation
3.	**JOURNAL NAME:** International Journal of Research and Reviews in Applied Sciences **TITLE:** Smartphone control robots through Bluetooth**.** **AUTHOR NAME:** H. Nasereddin and A. Abdelkarim. **ISSUE NO:** vol. 4, no. 4, pp. 399–404, 2010	This paper describes about the controlling of robots through smartphones via bluetooth.
4.	**JOURNAL NAME:** International Symposium on Resilient Control Systems **TITLE:** Tele-manipulation of robot arm with Smartphone **AUTHOR NAME:** C. Parga, L. Xiaoou, and Y. Wen **ISSUE DATE:** pp. 60–65, August 2013.	This article pointing out the manipulation of robot arm through smartphones via internet so that we can control robot from any part of the world.

NEED AND IMPORTANCE

01

No need for teach pendant

02

Easy access and mobile

03

Easy handling

04

No cost

Features

01

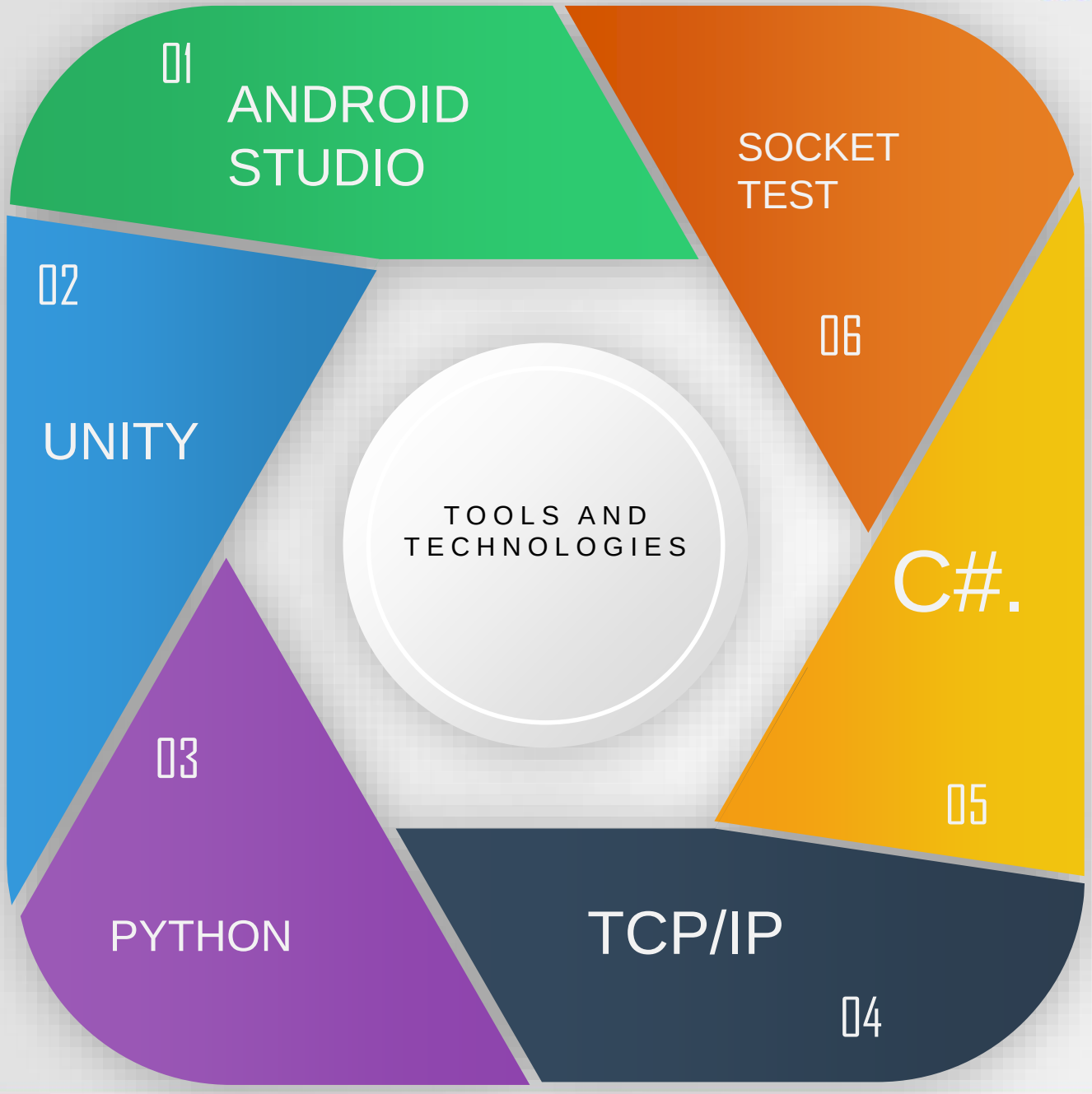
LAN

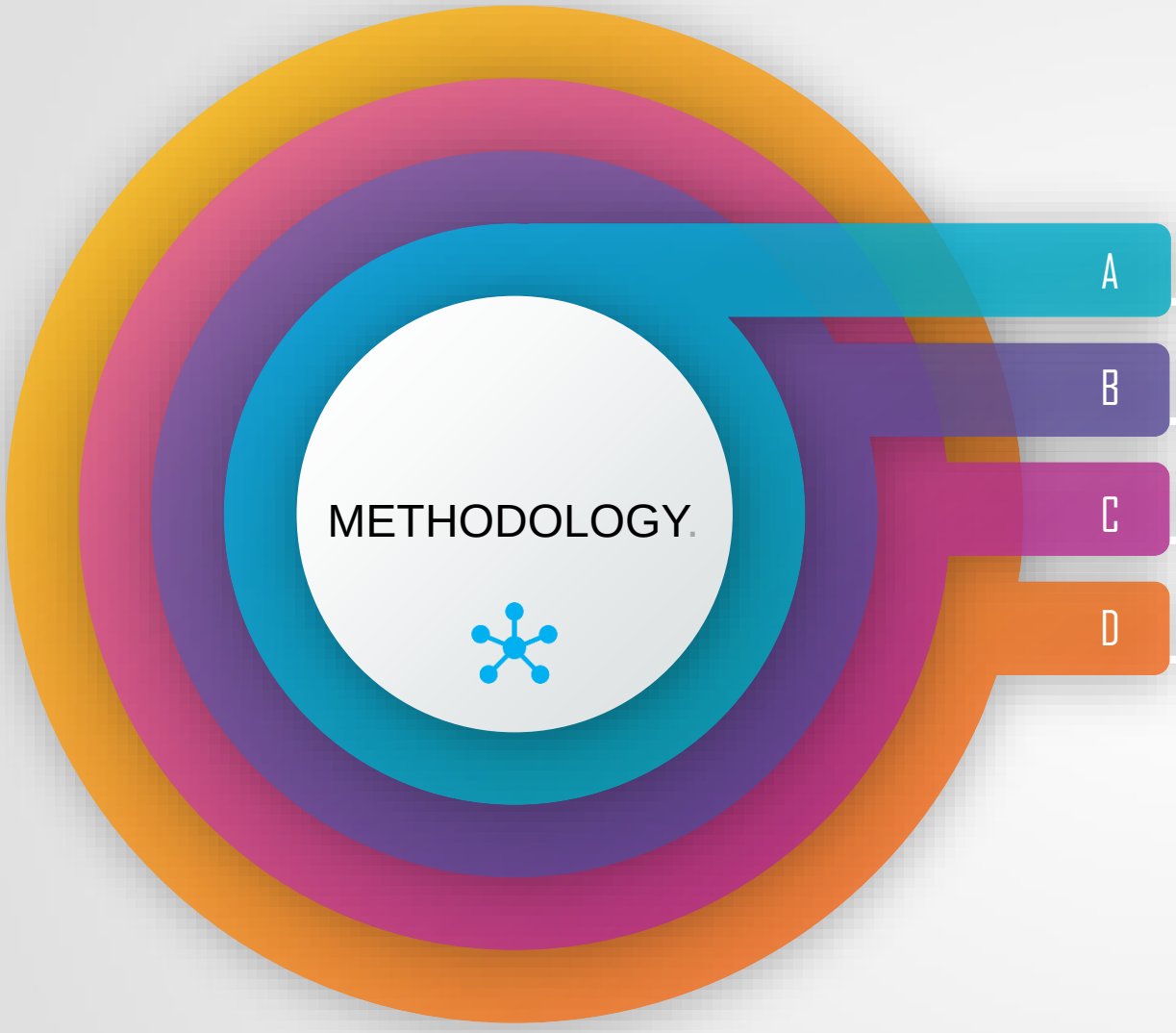
02

Display the response in the app.

03

Peer to peer connection.


01
ANDROID STUDIO
02
UNITY
03
PYTHON
04
TCP/IP
05
C#.
06
SOCKET TEST
TOOLS AND TECHNOLOGIES



Robot and the user connect to the same router.

User send request to the robot.

Robot perform the operation and send response.

Response will be displayed in the app.

Work done

Universal robot is made wireless by connecting it to a router.

3D model

Universal robot IP address is perfectly pinged to another phone by setting static IP address in universal robot.

The robot is controlled for specific commands.

App

System and user requirement

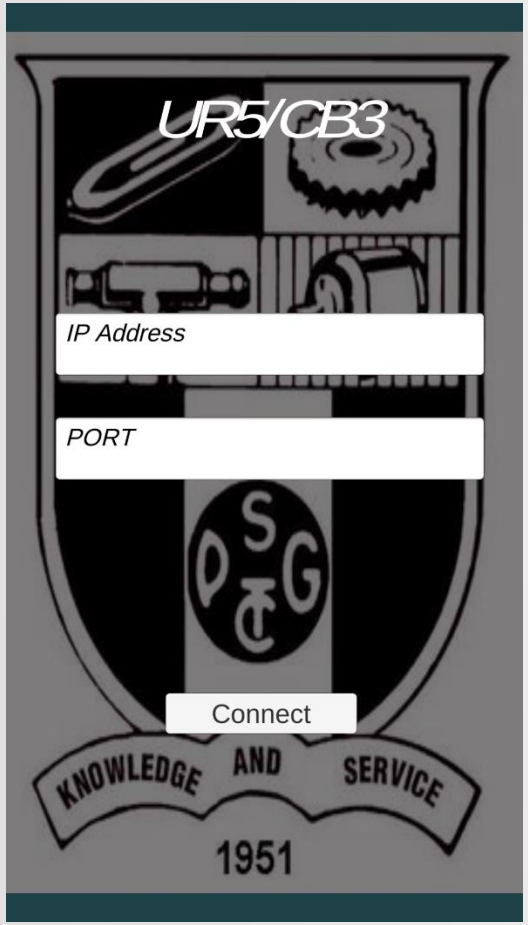
A

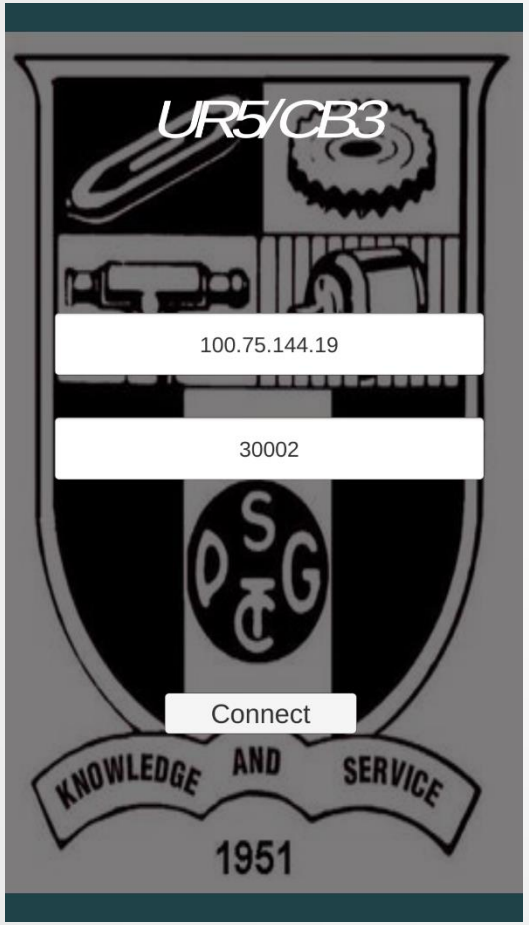
KITKAT VERSION 4.4-4.4.4 AND ABOVE FOR ANDROID (.apk)

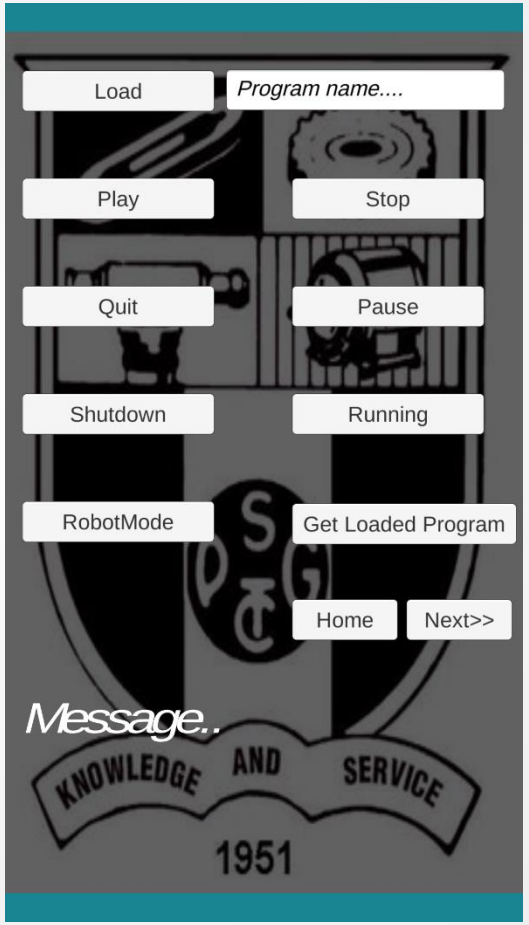
B

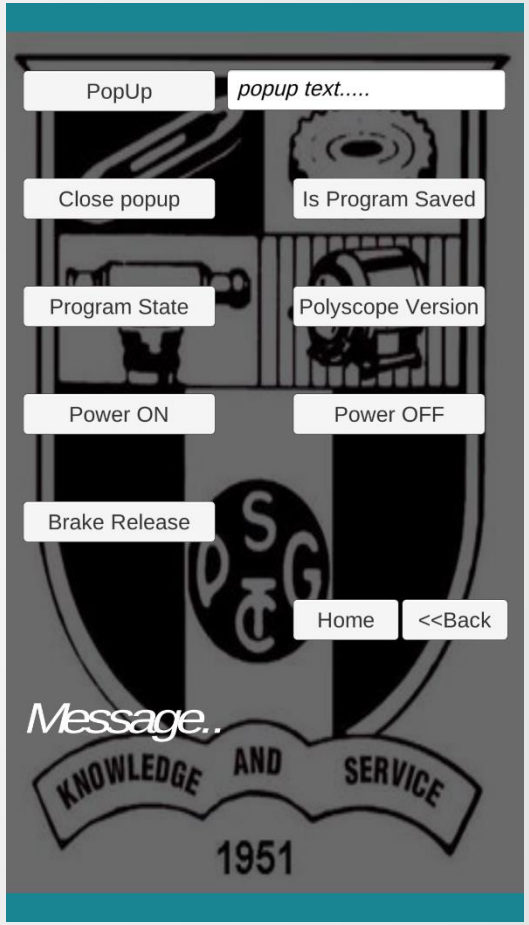
WINDOWS 7 AND ABOVE FOR WINDOWS (.exe)

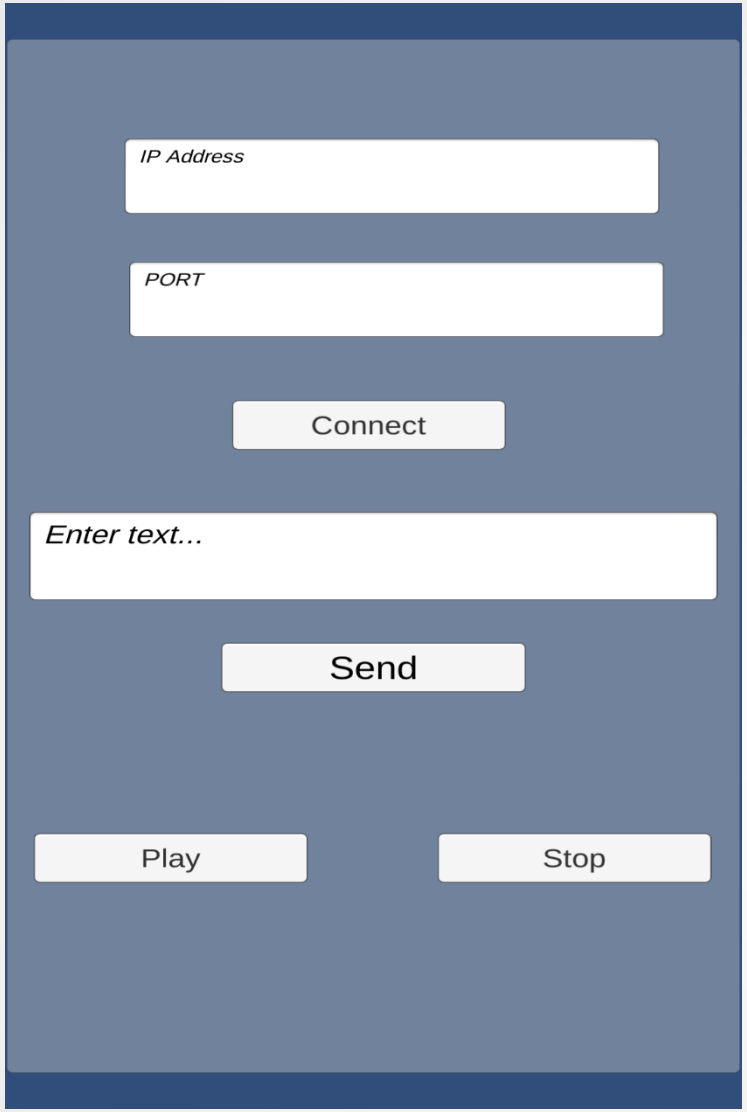
Snapshots of the app









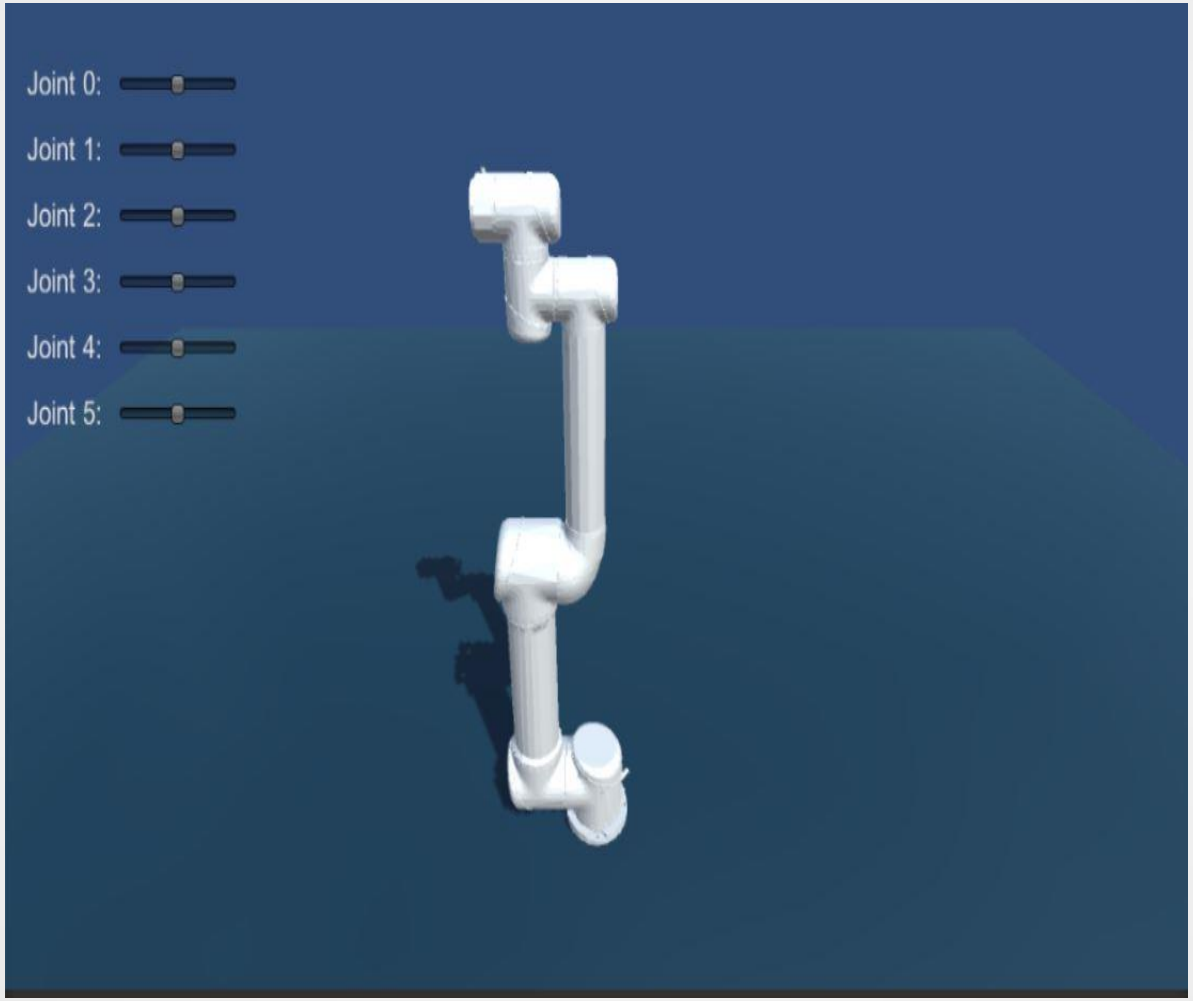


Basic version of the android app

Work yet to be done

To control the robot via 3D model.

3D model of the UR5/CB3 robot



Reference

[1] C. Boja and A. Zamfiroiu, “Input methods in mobile learning environments,” Studies in Informatics and Control, vol. 22, no. 4, pp. 329–338, 2013.

[2] J. Steele and N. To, The Android developer’s cookbook: building applications with the Android SDK. USA: Addison-Wesley, 2013.

[3] S. Conder and L. Darcey, Android wireless application development. Boston, USA: Addison-Wesley, 2010.

[4] D. Hižak and M. Mikac, “Development of a simple tool for audio analysis on mobile Android platform,” Tehniˇcki glasnik, vol. 7, no. 2, pp. 177–181, 2013.

[5] G. Ferenc, M. Lutovac, J. Vidakovi´c, Z. Dimi´c, and V. Kvrgi´c, “Real-time robot control logic using modular FSM,” in Proceedings book of the 4thInternational Conference Management of Technology - Step to Sustainable Production, (Zadar, Croatia), pp. 259–265, June 2012.

[6] https://unity3d.com/learn


Thank you!!!!!!
SAMSUNG