Internet of Things (IOT) – lab 3

Objective: To establish communication from Android app to Arduino sketch at UDOO to Arduino sketch at UNO

Perform the configuration as shown in Figure 1.

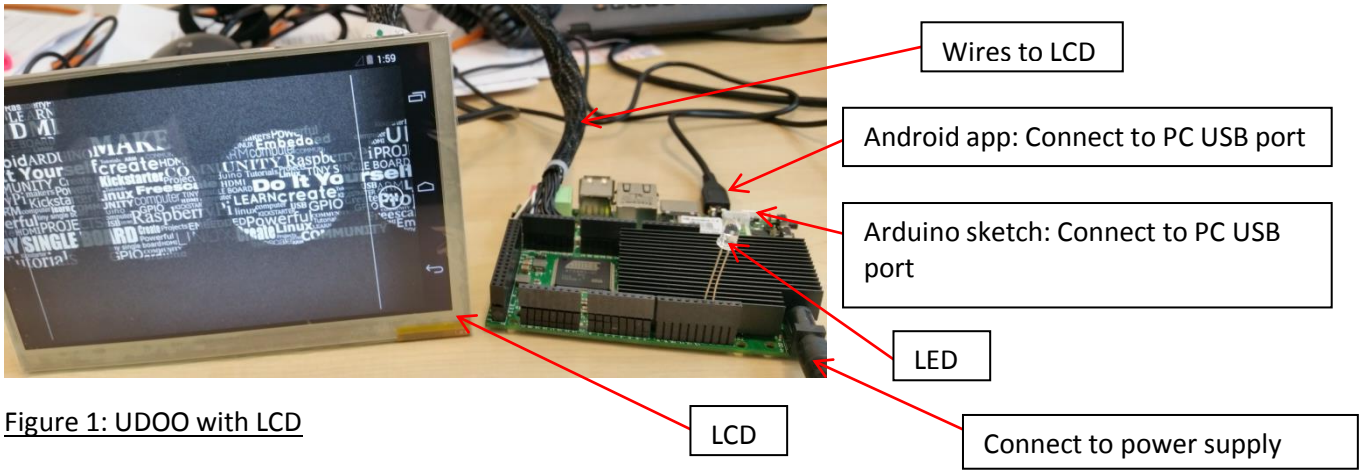

Figure 1: UDOO with LCD

Checking the settings of the LCD by the following procedures.

Settings -> Display -> Sleep -> Select: After 30 minutes of inactivity

Settings -> Developer options -> Select: External OTG port enabled

Settings -> Developer options -> Select: USB debugging

Execute UDOOBlinkLEDActivity which is a Java file in lab3_android_app using Android Studio. A screen like Figure 2 will appear. Select the UDOO device. Click OK button. The screen at the LCD (Figure 3) appears.

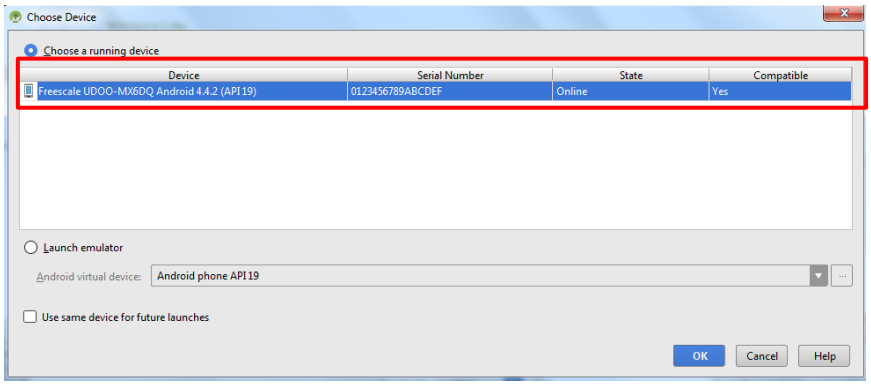

Figure 2: Running device

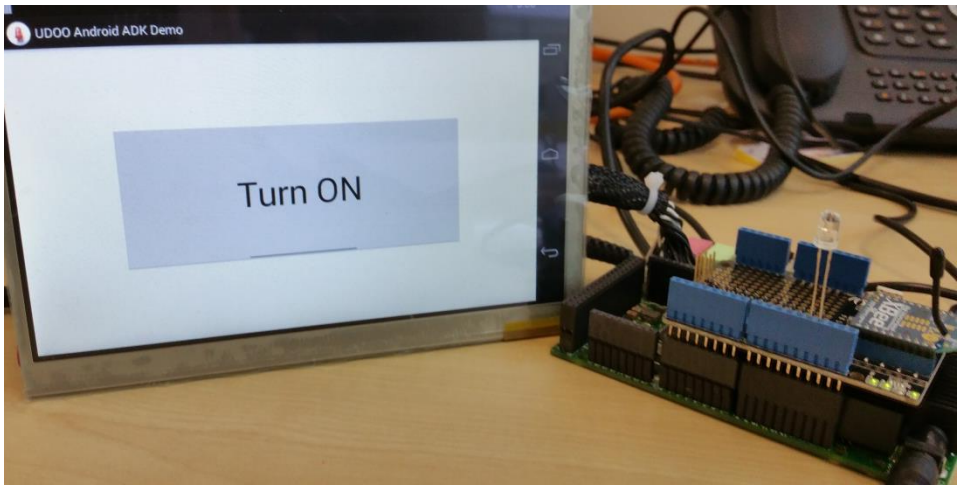

Figure 3: UDOO Android ADK Demo

Try the following procedure if Android Studio is not able to detect the UDOO device, at the LCD drag down the Settings icon. Select the connected to a USB accessory option. Then select Camera (PTP).

Disconnect the microUSB cable for Android application (Figure 1) and connect the microUSB cable for Arduino sketch (Figure 1). Follow the same steps as specified in lab 1 to upload the sketch file, lab3_Due, into UDOO Arduino Due.

Press the reset button at J18. The LED will auto reboot.

Press the Turn ON button at the LCD (Figure 3). If the LED does not light up, go to Settings -> Developer Options -> Select: External OTG port enabled . Then unselect External OTG port enabled. This is to re-establish communication between Arduino and Android. After that, press the Turn ON button again. The LED should light up at UDOO.

Modify your programs so that at the Arduino UNO the LED light up (Figure 4) and display of "H" at the serial monitor screen at Arduino UNO when the Turn ON button is pressed at the LCD. When the Turn OFF button is pressed, the LED light turn off and display of "L" at the serial monitor screen.

After you have finished, get a check off from one of the instructors or TA's by system demonstration.

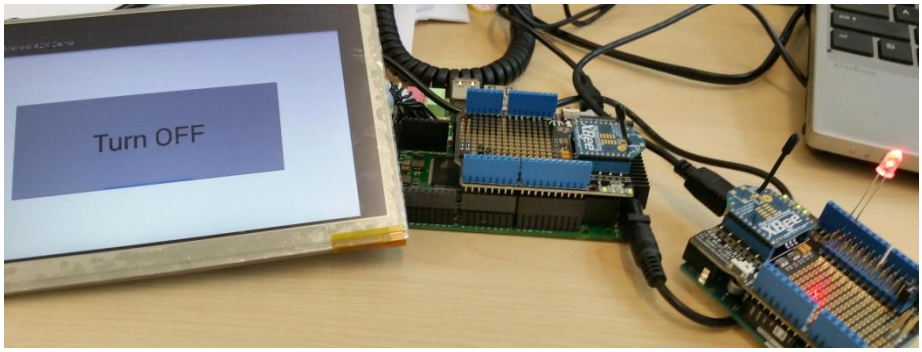

Figure 4: Android app to Arduino sketch at UDOO to Arduino sketch at UNO