Android APP Experiment Module

COS-100

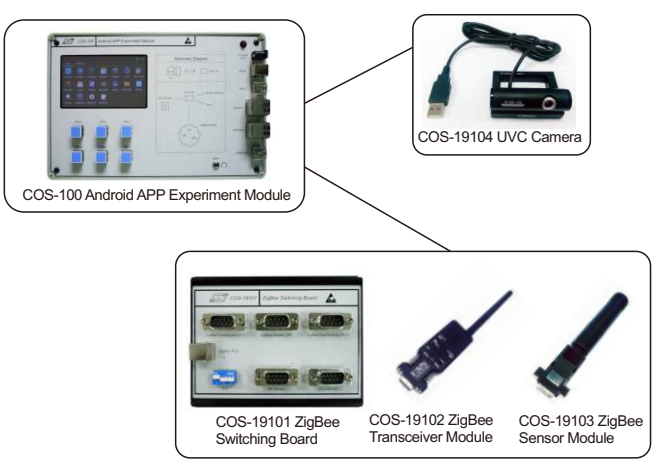
*Notebook is excluded

Android system, mainly used on mobile devices, is an open source operation system based on Linux kernel. Android APPs, the applications mounted on the Android system, are widely developed and used. COS-100 adopts free and open source Android SDK (Android Software Development Kit), JDK (Java Development Kit) and Eclipse (Integrated Development Environment).

COS-100 offers courses for users to easily learn not only on Android APP development environment setup but also on Android APP programming. In addition to the introduction of basic principles of the Android development environment, experiments of some APPs are also designed. Course topics include: understanding the Eclipse operating environment, image capture and display by UVC camera, discussion on the Android APP version compatibility issues, introduction and application of e-books, application of accelerometer, application of touch panel control. Moreover, ZigBee Transceiver Module and ZigBee Sensor Module are also provided for making experiments.

▶Features

- Setup Android APP development environment, create Android APP and execution file of Android APP by Android SDK, JDK and Eclipse.
- Download and execute Android APP on COS-100.
- User friendly Debugging mode.
- User friendly APP Experiment Module by its TI AM3354 ARM Cortex-A8 processor, DDR3 RAM and Touch Panel.
- Wi-Fi or Ethernet for Internet connection.
- UVC Camera and its functions of auto focus, image capture and storage.
- Construct ZigBee network to learn ZigBee protocol and application by ZigBee Transceiver Module and ZigBee Sensor Module.



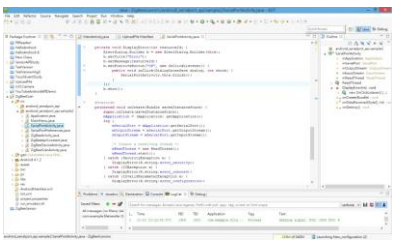
▶Specifications

Introduction to COS-100 Hardware

1. Android APP Experiment Module：1 pc.
   - TI AM3354 ARM Cortex-A8 processor, up to 720MHz
   - 256MB DDR3
   - 4.3" LCD Touch Panel
   - Wi-Fi / Two ports Ethernet
   - Audio Out - Stereo
   - Six Function Button
   - Two USB Port and One ZigBee Port
2. COS-19101 ZigBee Switching Board：1 pc.
3. COS-19102 ZigBee Transceiver Module：3 pcs.
   - Core Chips : TI CC 2530
   - Coverage : 30~50 m
   - Tx. Power : 4.0dBm
   - Rx. Sensitivity : -95dBm (Nominal)
   - Baud Rate Supports : 1.2/2.4/4.8/9.6/19.2/38.4/57.6/115.2/230.4 Kbps
   - Connection Point-to-Multi points
   - Standard 2.4 GHz IEEE 802.15.4/ZigBee Protocol
   - Data rate 250Kbps
   - Frequency : 2.4GHz~2.5 GHz
   - Modulation DSSS
   - Antenna (SMA female) + external dipole antenna
   - Antenna Impedance 50 ohm
   - Power Supply : DC 5V ~ 6V
   - Current Consumption : TX : 35.5 mA @ +4.5 dBm, RX : 24 mA
   - Operation Temperature : -20°C to +75°C

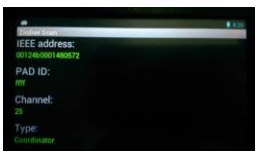
4. COS-19103 ZigBee Sensor Module : 2 pcs.
   (Temperature and Humidity Meter)
   • Operation Voltage : DC 3.3V~5V.
   • Current Consumption : 5mA(max)
   • Operation Temperature : 0~60°C.
   • Operation Humidity : 15~95%RH.
   • Accuracy :
     Temperature ±1°C
     Humidity ±3%RH at 25°C
   • Baud Rate : 9600 bps, 8 Data bits, None parity, 1 Stop bit

5. COS-19104 UVC Camera : 1 pc.
   • Sensor : CMOS Sensor
   • Max. Dynamic Preview Resolution : 2.0M(1600x1200)
   • Max. Static Photo Resolution : 30.0M(6400x4800)
   • Frame Rate : Max 30fps@640*480 VGA,
     30fps@1280*720 HD
   • Static Photo Storage Format : JPG, BMP
   • Interface : USB 2.0
   • Power Supply : USB port supply or DC 5V, 120mA



Eclipse Integrated Development Environment

Android Virtual Device



COS-100 Experiments Screen

List of Experiments

Exp. 1 : Hello Android
Exp. 2 : Chess
Exp. 3 : e-Book Reader
Exp. 4 : Video player - YouTube
Exp. 5 : Video player - Media Transfer Protocol（MTP）
Exp. 6 : Android APP version compatibility issues of Debug Message
Exp. 7 : UVC Camera
Exp. 8 : Accelerometer
Exp. 9 : Touch Event
Exp. 10 : ZigBee Transceiver Module
Exp. 11 : ZigBee Sensor Module

System Requirements

Operating System

- Windows XP
- Windows 7(32/64 bit)
- Windows 8

Recommended PC specifications

- CPU : Core i3 up
- Hard disk : 500M up
- Memory : 1G up

Accessories

1. USB cable (A-B type) : 2 pcs.
2. AC adaptor (input : AC 100~240V, output : DC 5V/3A) : 1 pc.
3. Experiment Manual : 1 pc.
4. Installation CD : 1 pc