Chapter 5: Bluetooth Classic

Time 3 Hours

At the end of this chapter you will understand ……

5.1 Bluetooth Introduction 2

5.2 Bluetooth Profiles 2

5.3 Bluetooth Network 2

5.4 Logical Transports (Links) 2

5.5 States and State Transitions 2

5.6 Packets 3

5.7 Security 3

5.8 Advanced Topics 3

5.9 Using Bluetooth in WICED Studio 3

5.10 Exercise(s) 4

Exercise - 5.1 Serial Port Profile (SPP) ??? 4

Exercise - 5.2 Human Interface Device Profile (HID) ??? 4

Exercise - 5.3 Hands-Free Profile (HFP) ??? 4

Exercise - 5.4 Combo Bluetooth/BLE: SPP + BLE Custom CapSense ??? 4

5.11 Related Example “Apps” 5

5.12 Recommended Reading 5

# Bluetooth Introduction

Applications – why classic still matters

Class 1, 2, 3

Frequencies and channels

Frequency hopping (channel hopping)

GFSK for 1 Mbps (BR – basic rate), Pi/4-DQPSK for 2 Mbps (EDR – enhanced data rate), 8 DPSK for 3 Mbps (EDR)

# Bluetooth Profiles

A2DP, SPP, HFP, HID, etc.

Does this belong later?

# Bluetooth Network

Master/Mlave, Piconets, Scatternets

Device addresses

Piconet Clocks

Channel hopping sequence, adapted frequency hopping

Time slots, multi-slot packets

# Logical Transports (Links)

SCO, eSCO, ACL, ASP, PSB

L2CAP and LMP layers? Where does this belong? Should it be a separate section after this? Do we need a section above this section with all of the layers shown as a figure?

# States and State Transitions

Standby, Inquiry, Page, Connected, Transmit, Park, Hold, Sniff

Inquiry Procedure – general and dedicated, discoverable devices, access codes, GAP timers

Paging Procedure – master/slave, GAP timers

# Packets

Packets – BR, EDR, packet types (segment-1, -2, -3, -4, ID, NULL, POLL, FHS, SCO (HV1, 2, 3, DV), eSCO, ACL, etc.)

Does the packets section belong in the logical transports section?

# Security

In-Vehicle security

# Advanced Topics

Combo BT/BLE

# Using Bluetooth in WICED Studio

WICED Bluetooth Designer Wizard

# Exercise(s)

* 1. Serial Port Profile (SPP) ???
  2. Human Interface Device Profile (HID) ???
  3. Hands-Free Profile (HFP) ???
  4. Combo Bluetooth/BLE: SPP + BLE Custom CapSense ???

# Related Example “Apps”

|  |  |
| --- | --- |
| **App Name** | **Function** |
| snip.bt.spp |  |
| snip.bt.a2dp\_sink |  |
| demo.headset |  |
| demo.hid |  |
|  |  |

# Recommended Reading