지능형 IOT 네트워크

1주차 - Protocol 과제제출

제출자 : 안건호

Intro

IOT + AI + 웹프로그래밍 → C,파이썬,리눅스,TCP/IP 필요

센서를 통해 데이터를 수집 → 아두이노(통신모듈),라즈베리파이(인터넷통신 가능) 디바이스를 사용

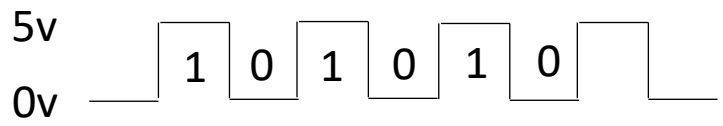
라즈베리파이 (개발용보드) → 동작기반(OS,Linux) → 고도화(AI)

Protocol

통신을 위한 상호간의 약속 및 규약

1. Format : 형식(Syntax)
2. Meaning : 의미
3. Timing(타이밍)/Synch(동기화)/Procedure(절차)

1) 유선

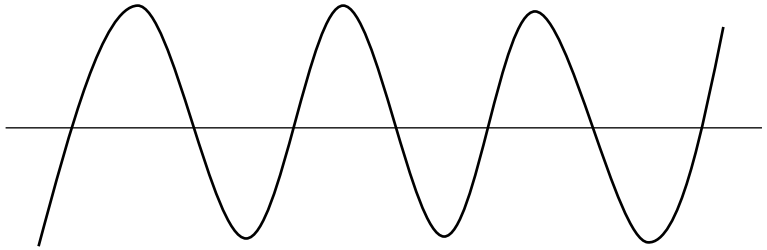


5v = 1 Format & Meaning
0v = 0

1bps Timing
= bit per sec

Protocol

2) 무선



10Mhz + 25Khz = 1 Format & Meaning
10Mhz – 25Khz = 0

1bps Timing

3) 데이터

1010 / 1100 / 1100 0000

ex) 4bits 단위 Format & Meaning

0000 = 0 Timing – 0000 일 경우

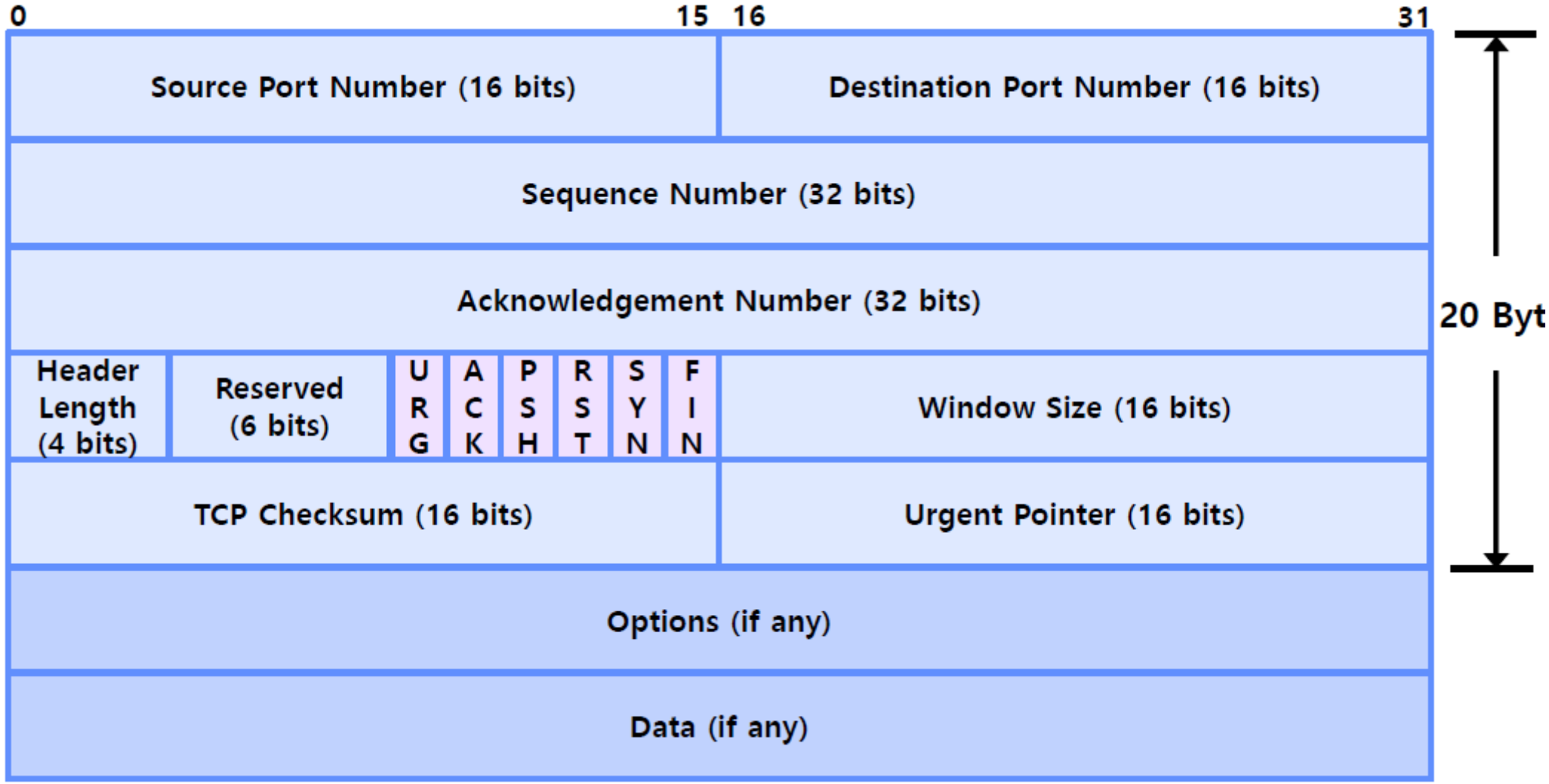
0001 = 1

0010 = 2

0011 = 3

Protocol

1) TCP 헤더 구조



Protocol

2) ARP 패킷 형식

<table>
<tr><td colspan="2">Hardware Type</td><td>Protocol Type</td></tr>
<tr><td>Hardware
length</td><td>Protocol
length</td><td>Operation
Request 1, Reply 2</td></tr>
<tr><td colspan="3">Sender hardware address
(For example, 6 bytes for Ethernet)</td></tr>
<tr><td colspan="3">Sender protocol address
(For example, 4 bytes for IP)</td></tr>
<tr><td colspan="3">Target hardware address
(For example, 6 bytes for Ethernet)
(It is not filled in a request)</td></tr>
<tr><td colspan="3">Target protocol address
(For example, 4 bytes for IP)</td></tr>
</table>