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1 # Packet Structure (response.py)
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3 # 01/08/2020
4
5 from packet import *
6 from datetime import datetime
7 from language import DT_Language
8
9 class DT_Response(DT_Packet):
10     ErrorMessage = [
11         "Expecting received packet have MagicNum 0x497E.",
12         "Expecting received packet have packetType 0x0002.",
13         "Undefined language outupt Type [Eng/Maori/Ger]?",
14         "Year is over 2100. Data received must be invalid.",
15         "Month is not between 1 and 12. Data received must be invalid.",
16         "Day is not between 1 and 31. Data received must be invalid.",
17         "Hour is not between 0 and 23. Data received must be invalid.",
18         "Minute is not between 0 and 59. Data received must be invalid.",
19         "Some data of displaying message is missing",
20         "Packet header is shorter than expected"
21     ]
22
23     def __init__(self, language, mode, head_info=None):
24         self.language = language
25
26         if head_info is None:
27             super().__init__(0x0002)
28             now = datetime.now() # Time when obj created
29             self.time = [now.year, now.month, now.day, now.hour, now.minute]
30             dt = DT_Language(language, mode, self.time)
31             self.message = dt.DTtoString().encode('utf8')
32             self.m_len = len(self.message)
33         else:
34             self.MagicNum = head_info[0]
35             self.packetType = head_info[1]
36             self.time = head_info[2]
37             self.message = head_info[3]
38             self.m_len = head_info[4]
39
40     def __repr__(self):
41         out = "{}\n<Magic: {}> <packetType: {}> <lang: {}>\n<Time: {}> <MessLen: {}>"
42         mess = type(self).__name__ + ": " + str(self.message, 'utf-8')
43         return out.format(mess, hex(self.MagicNum),
44                             DT_Packet.DT_hex(self.packetType),
45                             DT_Packet.DT_hex(self.language),
46                             self.time, self.m_len)
47
48     def header_errorCode(self):
49         error_code = 0
50         if self.MagicNum != 0x497E:
51             error_code = 1
52         elif self.packetType != 0x0002:
53             error_code = 2
54         elif self.language < 0x0001 or self.language > 0x0003:
55             error_code = 3
56         elif self.time[0] < 0 or self.time[0] > 2100:
57             error_code = 4
58         elif self.time[1] < 1 or self.time[1] > 12:
59             error_code = 5
60         elif self.time[2] < 1 or self.time[2] > 31:
61             error_code = 6

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62     elif self.time[3] < 0 or self.time[3] > 23:
63         error_code = 7
64     elif self.time[4] < 0 or self.time[4] > 59:
65         error_code = 8
66     elif self.m_len != len(self.message):
67         error_code = 9
68     return error_code
69
70 def encodePacket(self):
71     """ Get the actual bytearray store data of this packet """
72     # Error check
73     check = self.isValid()
74     if check != 0:
75         return check
76
77     # Header
78     header = ""
79     header += DT_Packet.intToBinStr(self.MagicNum,16)
80     header += DT_Packet.intToBinStr(self.packetType,16)
81     header += DT_Packet.intToBinStr(self.language,16)
82     header += DT_Packet.intToBinStr(self.time[0],16)
83     header += DT_Packet.intToBinStr(self.time[1],8)
84     header += DT_Packet.intToBinStr(self.time[2],8)
85     header += DT_Packet.intToBinStr(self.time[3],8)
86     header += DT_Packet.intToBinStr(self.time[4],8)
87     header += DT_Packet.intToBinStr(self.m_len,8)
88     header = int(header, 2).to_bytes(13, byteorder='big')
89
90     # Pack
91     packet = bytearray()
92     packet += header
93     packet += self.message
94     return packet
95
96 @staticmethod
97 def decodePacket(packet, mode):
98     if len(packet) < 13:
99         return 10
100
101     """ Turn bytearray to object """
102     magic = DT_Packet.byteArrToInt(packet[0:2])
103     packType = DT_Packet.byteArrToInt(packet[2:4])
104     language = DT_Packet.byteArrToInt(packet[4:6])
105     year = DT_Packet.byteArrToInt(packet[6:8])
106     month = DT_Packet.byteArrToInt(packet[8:9])
107     day = DT_Packet.byteArrToInt(packet[9:10])
108     hour = DT_Packet.byteArrToInt(packet[10:11])
109     minute = DT_Packet.byteArrToInt(packet[11:12])
110     length = DT_Packet.byteArrToInt(packet[12:13])
111
112     time = [year, month, day, hour, minute]
113     mess = packet[13:]
114
115     # Error check
116     param = [magic, packType, time, mess, length]
117     responsePack = DT_Response(language, mode, tuple(param))
118     check = responsePack.isValid()
119     if check != 0:
120         return check
121     return responsePack
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