Smart water quality monitoring system

Submitted by :

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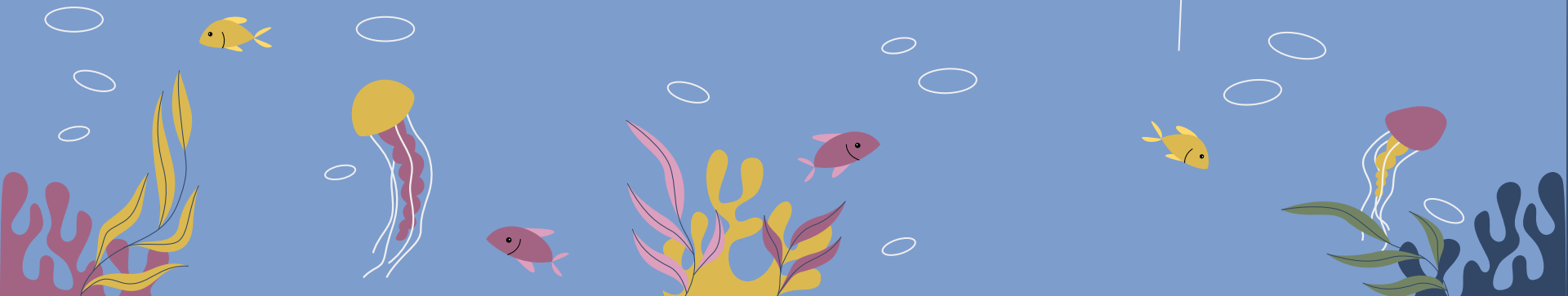

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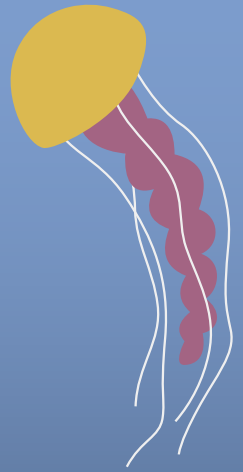


01

Introduction

As per increase in water pollution there is need of controlling pollution in water is finished by monitoring water quality.

Our system consists of various sensors which will compute the standard values of water in real-time for effective action and I accurate and only less manpower required

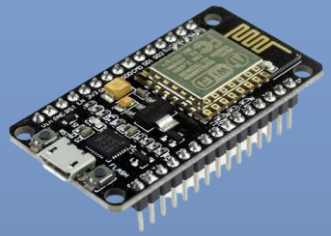
02

Objective

To develop an IoT system that would monitor the quality of water

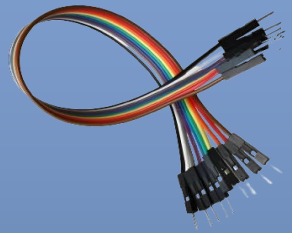
03

Requirement Equipment



NodeMCU esp8266

Breadboard



jumper wires

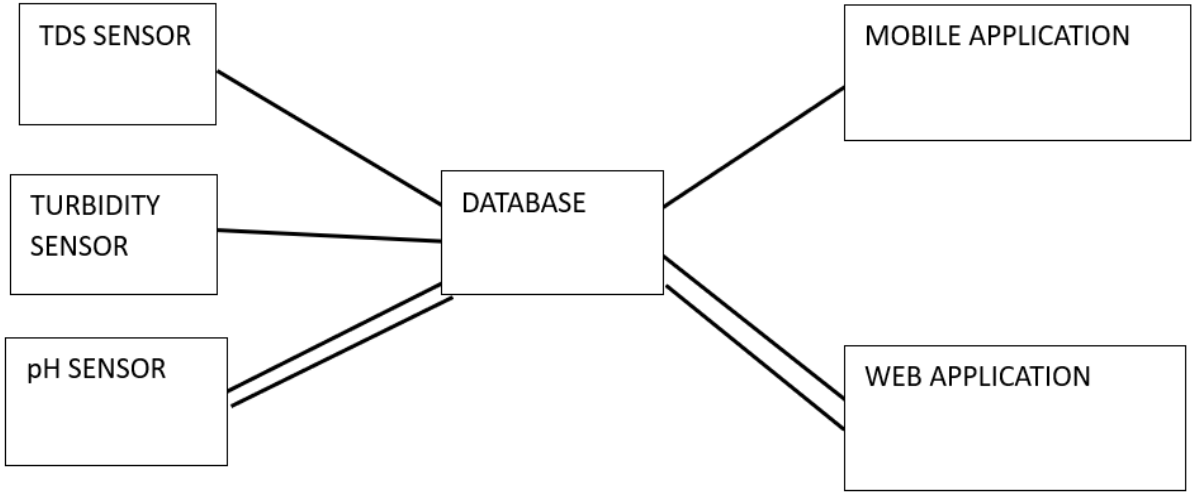
TDS sensor

Turbidity sensor

pH sensor

04
Architucture

ARCHITECTURE



05

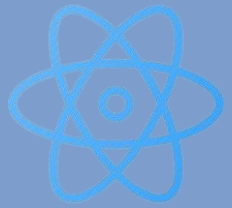
Tools and Technology

Arduino IDE

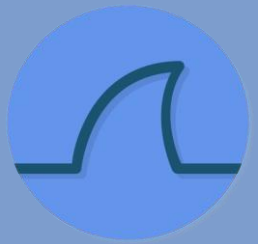
Firebase

MIT App Inventor

Visual Studio

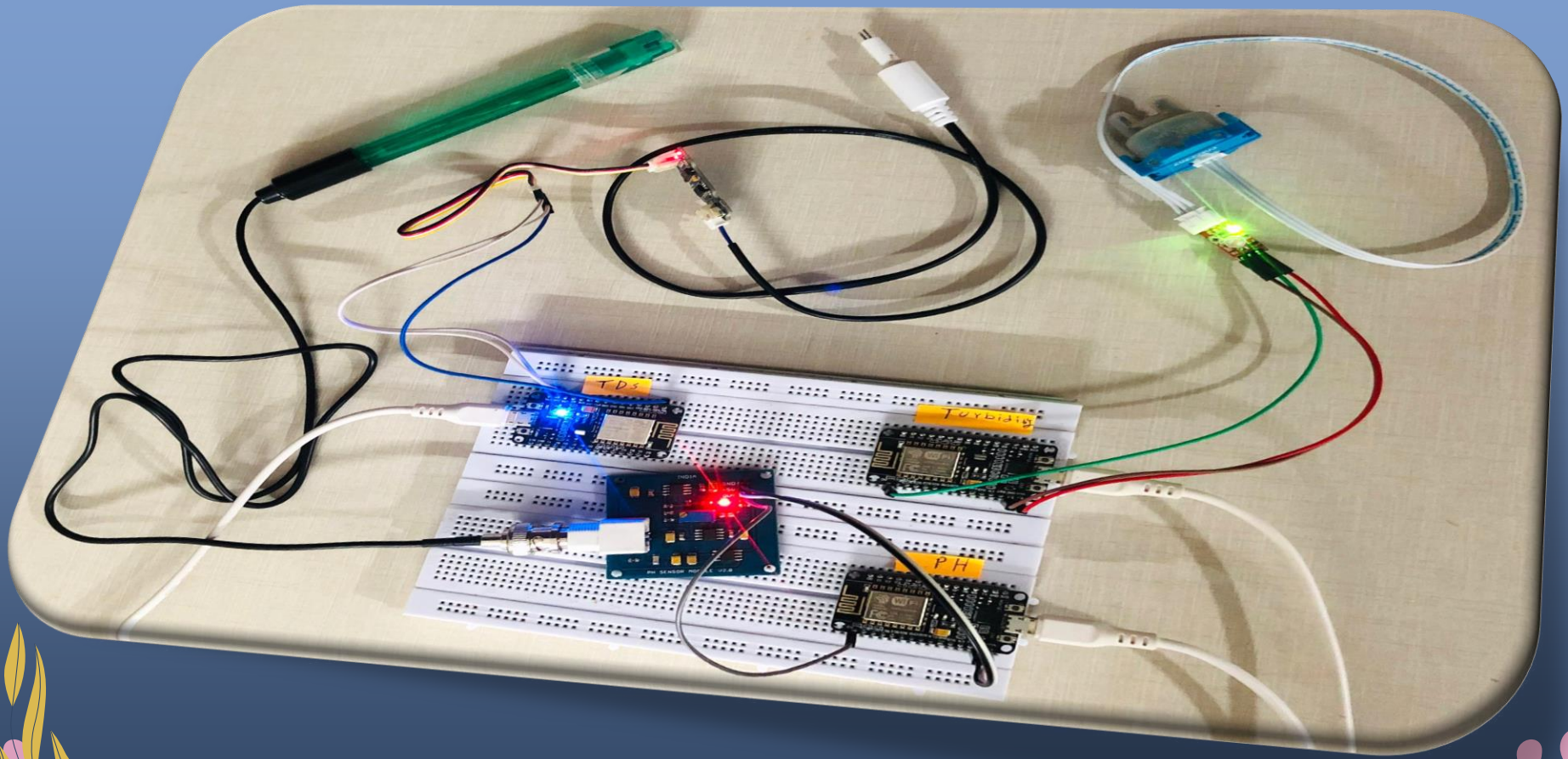


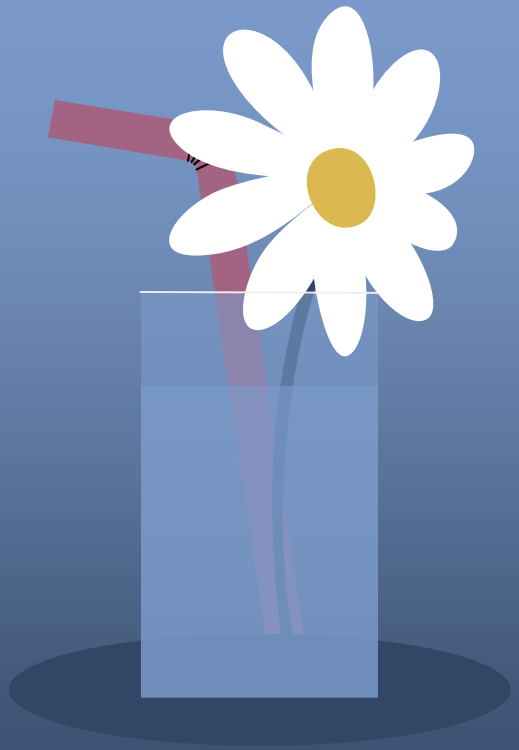
ReactJS



Wireshark

06 System Design


TDS
TURBIDITY
PH



Implementation 07

The Firebase

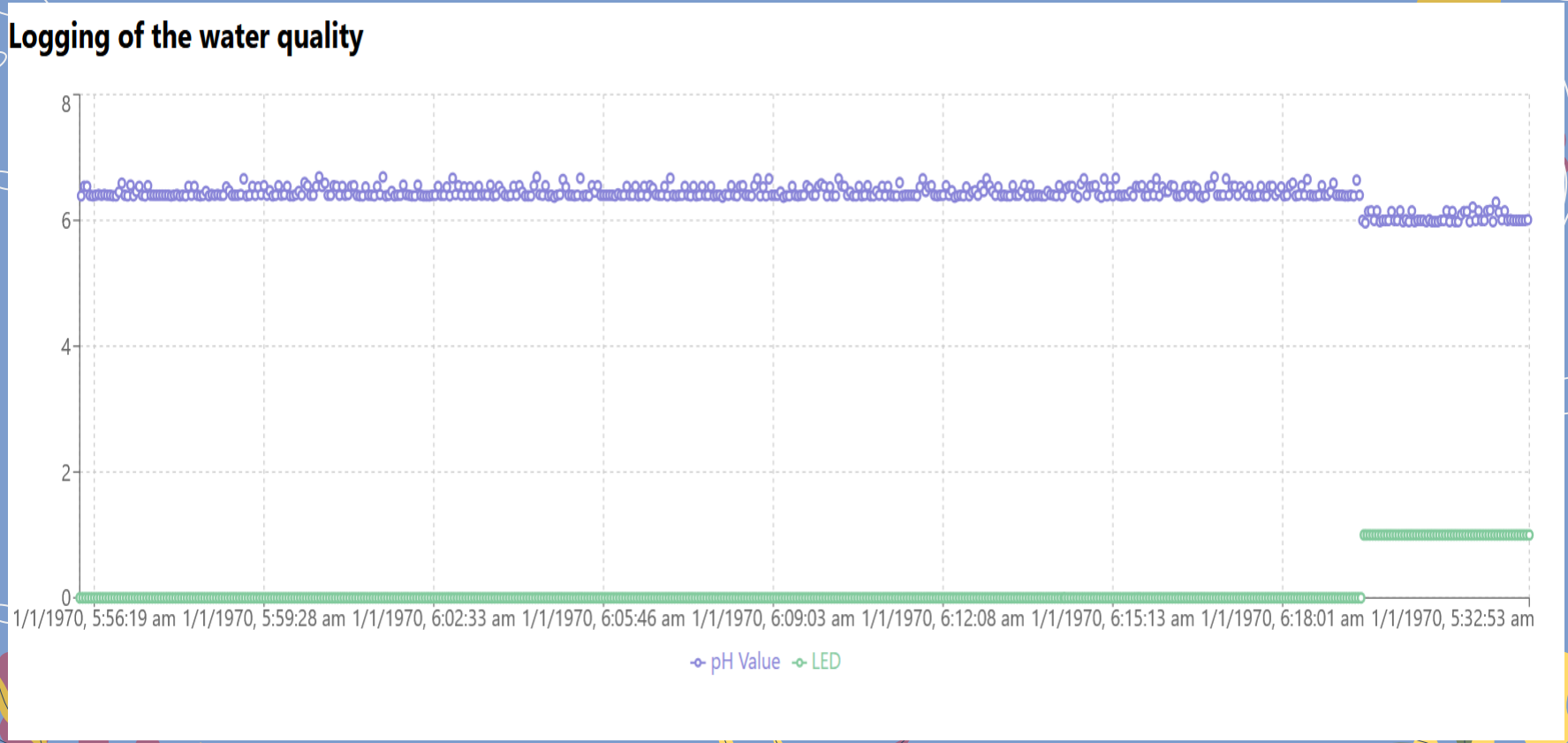
Web application Dashboard

Water Quality Dashboard

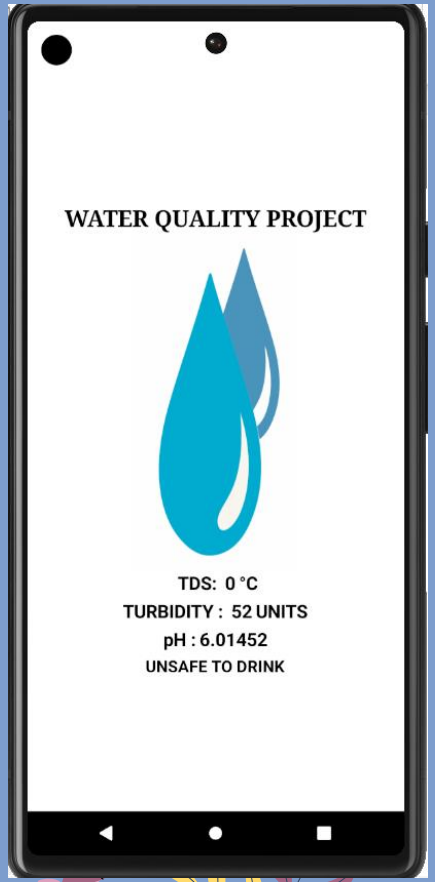
Property	Value
ph	6.16355
TDS	0
turbidity	52
LED State	ON
Water Quality Status	Status: Unsafe to drink Reason: Water does not meet recommended quality standards.

OFF Manual Override OFF

Logging of the water quality



Mobile Application



Wireshark

*Wi-Fi

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

ip.addr == 172.18.18.35 and (tcp.port == 3000)

No.	Time	Source	Destination	Protocol	Length	Info
3855	43.757204	180.149.52.216	172.18.18.35	TLSv1.3	1304	Application Data
3856	43.757284	172.18.18.35	180.149.52.216	TCP	66	[TCP Dup ACK 3817#4] 7586 → 443 [ACK] Seq=3579 Ack=14595 Win=65024 Len=0 SLE=15906 SRE=18406
3857	43.764294	35.201.97.85	172.18.18.35	TCP	1304	443 → 7230 [ACK] Seq=1844401 Ack=371 Win=275 Len=1250 [TCP segment of a reassembled PDU]
3858	43.764376	172.18.18.35	35.201.97.85	TCP	74	[TCP Dup ACK 3828#6] 7230 → 443 [ACK] Seq=371 Ack=1835651 Win=2070 Len=0 SLE=1839401 SRE=1845651 SLE=1836901 SRE=1838151
3859	43.770415	35.201.97.85	172.18.18.35	SSLv2	1304	Encrypted Data
3860	43.770515	172.18.18.35	35.201.97.85	TCP	74	[TCP Dup ACK 3828#7] 7230 → 443 [ACK] Seq=371 Ack=1835651 Win=2070 Len=0 SLE=1839401 SRE=1846901 SLE=1836901 SRE=1838151
3861	43.866929	180.149.52.216	172.18.18.35	TLSv1.3	1304	Application Data
3862	43.867017	172.18.18.35	180.149.52.216	TCP	66	[TCP Dup ACK 3817#5] 7586 → 443 [ACK] Seq=3579 Ack=14595 Win=65024 Len=0 SLE=15906 SRE=19656
3863	43.873275	35.201.97.85				
3864	43.873415	172.18.18.35				
3865	43.874037	172.18.18.35				
3866	43.920198	35.201.97.85				
3867	43.920273	172.18.18.35				
3868	44.015055	180.149.52.216				
3869	44.015153	172.18.18.35				
3870	44.016493	180.149.52.216				
3871	44.016515	172.18.18.35				
3872	44.022303	172.18.5.84				
3873	44.022490	172.18.18.35				
3874	44.099934	35.201.97.85				
3875	44.099934	180.149.52.216				
3876	44.100019	172.18.18.35				
3877	44.104889	172.18.18.35				
3878	44.151169	180.149.52.216				
3879	44.180492	35.201.97.85				
3880	44.180582	172.18.18.35				
3881	44.181237	35.201.97.85				

Wireshark · Packet 3861 · Wi-Fi

```
        [Bytes in flight: 1250]
        [Bytes sent since last PSH flag: 3750]
    TCP payload (1250 bytes)
    TCP segment data (112 bytes)
    [Reassembled PDU in frame: 3868]
    TCP segment data (1138 bytes)
> [2 Reassembled TCP Segments (611 bytes): #3855(499), #3861(112)]
v Transport Layer Security
  v TLSv1.3 Record Layer: Application Data Protocol: Hypertext Transfer Protocol
      Opaque Type: Application Data (23)
      Version: TLS 1.2 (0x0303)
      Length: 606
      Encrypted Application Data: fe9df38ad2c26e1110c4564b1d647232081089e9be04be52db21944e7e746d5cc7f35c7b…
      [Application Data Protocol: Hypertext Transfer Protocol]
```

```
0000  17 03 03 02 5e fe 9d f3  8a d2 c2 6e 11 10 c4 56   ····^··· ···n···V
0010  4b 1d 64 72 32 08 10 89  e9 be 04 be 52 db 21 94   K·dr2··· ····R·!·
0020  4e 7e 74 6d 5c c7 f3 5c  7b 48 2c 37 3f 50 59 de   N~tm\··\ {H,7?PY·
0030  12 f7 55 3c d4 9c bd 25  e6 2c fe 93 56 ce ae c6   ··U<···% ·,··V···
0040  61 4e 2f a0 73 00 f2 f1  5c 38 05 c0 c0 f1 ac 57   aN/·s··· \8·····W
0050  68 5e ff 7d 53 65 ec 85  1b ef 59 0c 8e 30 e5 a9   h^·}Se·· ··Y··0··
0060  2b e0 f0 60 9a b6 e1 27  9f 50 f2 e2 40 93 47 72   +··`···' ·P··@·Gr
0070  6b b1 b9 69 99 ba 48 5a  7b c4 1b 3f 6c 4d 93 74   k··i··HZ {··?lM·t
0080  cd f0 48 ba 28 e4 6b 60  8d 7a c9 37 08 55 be 79   ··H·(·k` ·z·7·U·y
0090  c3 7b 62 38 bd 98 a5 03  1a c0 6c e7 6a d3 1e eb   ·{b8···· ··l·j···
00a0  76 39 75 1b d6 b6 92 e7  2a b7 63 f1 86 7a ba 58   v9u····· *·c··z·X
00b0  5a 4e 83 8b b0 56 d4 cd  ed f4 e9 5b f1 24 e6 25   ZN···V·· ···[·$·%
00c0  9c bd 59 d2 cb 34 0a 03  13 1c a0 a7 17 91 9c 42   ··Y··4·· ·······B
00d0  74 69 a5 71 3f 2a 6e 98  e9 6f 23 99 36 2e 0e 9a   ti·q?*n· ·o#·6.··
00e0  a3 08 30 10 8a 88 f8 b1  d9 da 82 21 7b 40 ea d3   ··0····· ···!{@··
00f0  a6 6e f7 42 8d e6 4b f4  1a ad 92 77 94 e3 4a 68   ·n·B··K· ···w··Jh
```

> Frame 3861: 1304 bytes on wire (10432
> Ethernet II, Src: Cisco_7b:d8:ff (dc:0
> Internet Protocol Version 4, Src: 180.
v Transmission Control Protocol, Src Por
    Source Port: 443
    Destination Port: 7586
    [Stream index: 31]
    [Conversation completeness: Incompl
    [TCP Segment Len: 1250]
    Sequence Number: 18406 (relative
    Sequence Number (raw): 20497941

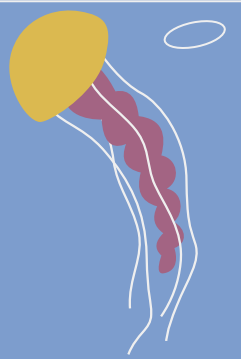
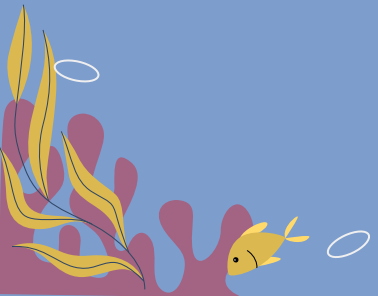
wireshark_Wi-FiY4ZMF2.pcapng

19°C Haze

Search

ENG 23:42 10-12-2023

08 CONCLUSION



This system takes real-time data from the sensors, log the data onto the database and also provide them to the web and mobile application.