

BAB IV

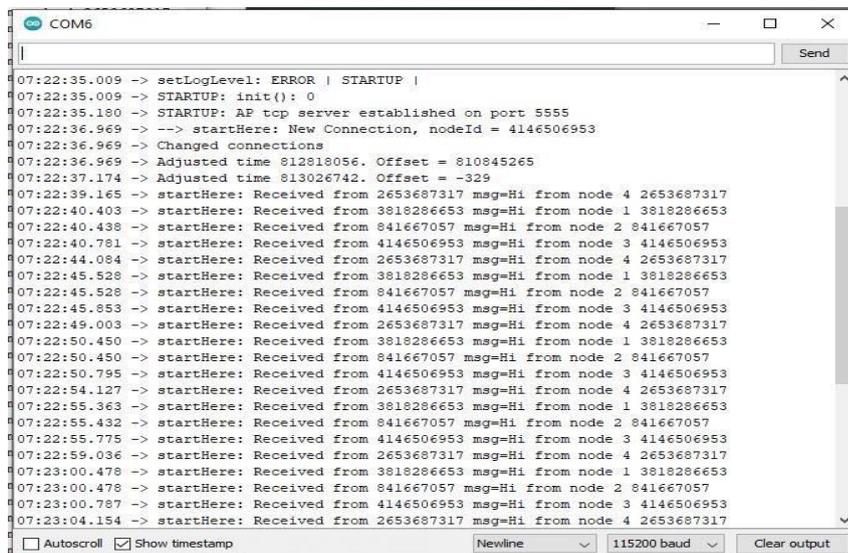
HASIL DAN PEMBAHASAN

4.1. Pendahuluan

Bab IV ini berisi pembahasan tentang pengujian dan hasil. Pengujian ini dilakukan di lingkup laboratorium universitas sriwijaya. Pengujian dilakukan dengan menguji perangkat-perangkat ESP 32 kemudian dihubungkan ke sensorT-highrow, BMP-180, THM-30MD, BN-220 lalu akan muncul data yang terkirim dan yang diterima.

4.2. Node Receiver

Node receiver menggunakan ESP32 untuk menerima pesan dari setiap ESP32 yang terhubung ke wifi, seperti yang ditunjukkan pada gambar 4.1 di bawah ini. Node penerima berfungsi sebagai penerima pesan dari node 1 hingga 3.



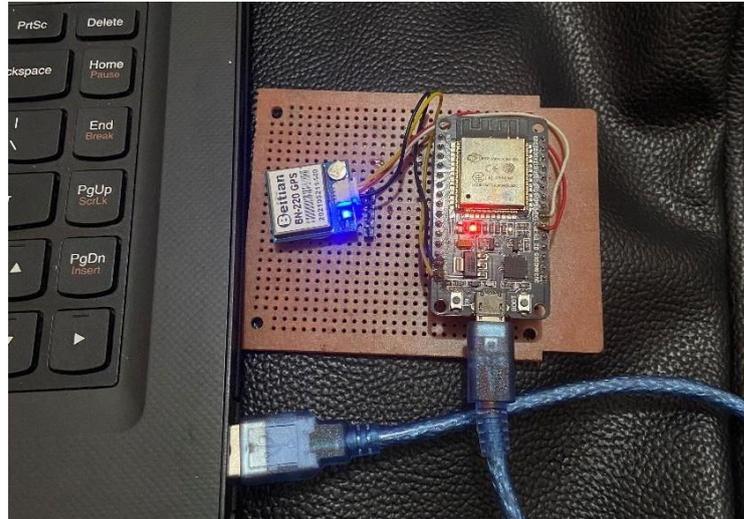
```
COM6
07:22:35.009 -> setLogLevel: ERROR | STARTUP |
07:22:35.009 -> STARTUP: init(): 0
07:22:35.180 -> STARTUP: AP top server established on port 5555
07:22:36.969 -> --> startHere: New Connection, nodeId = 4146506953
07:22:36.969 -> Changed connections
07:22:36.969 -> Adjusted time 812818056. Offset = 810845265
07:22:37.174 -> Adjusted time 813026742. Offset = -329
07:22:39.165 -> startHere: Received from 2653687317 msg=Hi from node 4 2653687317
07:22:40.403 -> startHere: Received from 3818286653 msg=Hi from node 1 3818286653
07:22:40.438 -> startHere: Received from 841667057 msg=Hi from node 2 841667057
07:22:40.781 -> startHere: Received from 4146506953 msg=Hi from node 3 4146506953
07:22:44.084 -> startHere: Received from 2653687317 msg=Hi from node 4 2653687317
07:22:45.528 -> startHere: Received from 3818286653 msg=Hi from node 1 3818286653
07:22:45.528 -> startHere: Received from 841667057 msg=Hi from node 2 841667057
07:22:45.853 -> startHere: Received from 4146506953 msg=Hi from node 3 4146506953
07:22:49.003 -> startHere: Received from 2653687317 msg=Hi from node 4 2653687317
07:22:50.450 -> startHere: Received from 3818286653 msg=Hi from node 1 3818286653
07:22:50.450 -> startHere: Received from 841667057 msg=Hi from node 2 841667057
07:22:50.795 -> startHere: Received from 4146506953 msg=Hi from node 3 4146506953
07:22:54.127 -> startHere: Received from 2653687317 msg=Hi from node 4 2653687317
07:22:55.363 -> startHere: Received from 3818286653 msg=Hi from node 1 3818286653
07:22:55.432 -> startHere: Received from 841667057 msg=Hi from node 2 841667057
07:22:55.775 -> startHere: Received from 4146506953 msg=Hi from node 3 4146506953
07:22:59.036 -> startHere: Received from 2653687317 msg=Hi from node 4 2653687317
07:23:00.478 -> startHere: Received from 3818286653 msg=Hi from node 1 3818286653
07:23:00.478 -> startHere: Received from 841667057 msg=Hi from node 2 841667057
07:23:00.787 -> startHere: Received from 4146506953 msg=Hi from node 3 4146506953
07:23:04.154 -> startHere: Received from 2653687317 msg=Hi from node 4 2653687317
Autoscroll  Show timestamp Newline 115200 baud Clear output
```

Gambar 4. 1 Hello From Node

Gambar 4.1 di atas menunjukkan node pengirim esp 32 untuk node penerima. Ini memastikan bahwa esp 32 terhubung ke jaringan Wi-Fi sehingga dapat berkomunikasi dengan perangkat atau server yang dimaksud.

4.3. Pengujian Sensor Gps

Pada pengujian ini ESP 32 dan sensor gps sebagai node 1 akan dihubungkan, jika led biru dan merah berkedip secara bersamaan berarti menandakan bahwasudah terhubung dan akan diterima oleh node 2 dan 3.



Gambar 4. 2 Sensor GPS

4.4. Hasil Pengujian Sensor Gps

Sensor gps sebagai node 1 berhasil mengirimkan data ke node receiver, Pada gambar dibawah ini adalah hasil data yang berhasil dikirimkan.

```
COM6
20:29:58.488 -> Diterima dari 3818285481: ("node":1,"Lat":-2.969985,"Long":104.746077,"Alt":36.3) - RSSI: -41 dBm
20:30:03.632 -> Diterima dari 3818285481: ("node":1,"Lat":-2.9699845,"Long":104.746077333,"Alt":36.3) - RSSI: -40 dBm
20:30:08.527 -> Diterima dari 3818285481: ("node":1,"Lat":-2.969988333,"Long":104.7460755,"Alt":36.5) - RSSI: -40 dBm
20:30:13.445 -> Diterima dari 3818285481: ("node":1,"Lat":-2.9699915,"Long":104.746073333,"Alt":36.4) - RSSI: -42 dBm
20:30:18.554 -> Diterima dari 3818285481: ("node":1,"Lat":-2.969992833,"Long":104.7460725,"Alt":36.7) - RSSI: -44 dBm
20:30:23.501 -> Diterima dari 3818285481: ("node":1,"Lat":-2.969990829999999,"Long":104.7460695,"Alt":36.5) - RSSI: -43 dBm
20:30:28.612 -> Diterima dari 3818285481: ("node":1,"Lat":-2.9699895,"Long":104.746067333,"Alt":36.3) - RSSI: -40 dBm
20:30:33.530 -> Diterima dari 3818285481: ("node":1,"Lat":-2.969988333,"Long":104.746064333,"Alt":35.9) - RSSI: -39 dBm
20:30:38.449 -> Diterima dari 3818285481: ("node":1,"Lat":-2.969987667,"Long":104.746063,"Alt":35.8) - RSSI: -43 dBm
20:30:43.543 -> Diterima dari 3818285481: ("node":1,"Lat":-2.9699878330000002,"Long":104.746064667,"Alt":36) - RSSI: -40 dBm
20:30:48.473 -> Diterima dari 3818285481: ("node":1,"Lat":-2.969987167,"Long":104.746066167,"Alt":36.1) - RSSI: -40 dBm
20:30:53.613 -> Diterima dari 3818285481: ("node":1,"Lat":-2.9699878330000002,"Long":104.746067167,"Alt":36.6) - RSSI: -41 dBm
20:30:58.499 -> Diterima dari 3818285481: ("node":1,"Lat":-2.9699878330000002,"Long":104.746066833,"Alt":37.5) - RSSI: -41 dBm
20:31:03.625 -> Diterima dari 3818285481: ("node":1,"Lat":-2.9699875000000002,"Long":104.746062833,"Alt":37.2) - RSSI: -41 dBm
20:31:08.526 -> Diterima dari 3818285481: ("node":1,"Lat":-2.969988167,"Long":104.746062167,"Alt":37.5) - RSSI: -39 dBm
20:31:13.479 -> Diterima dari 3818285481: ("node":1,"Lat":-2.969988167,"Long":104.7460625,"Alt":38.1) - RSSI: -39 dBm
20:31:18.586 -> Diterima dari 3818285481: ("node":1,"Lat":-2.969988667,"Long":104.746062,"Alt":38.2) - RSSI: -40 dBm
20:31:23.506 -> Diterima dari 3818285481: ("node":1,"Lat":-2.9699873329999997,"Long":104.746061667,"Alt":39) - RSSI: -39 dBm
20:31:28.610 -> Diterima dari 3818285481: ("node":1,"Lat":-2.969987167,"Long":104.746062,"Alt":38.9) - RSSI: -39 dBm
20:31:33.528 -> Diterima dari 3818285481: ("node":1,"Lat":-2.969987,"Long":104.746063333,"Alt":39.4) - RSSI: -39 dBm
20:31:38.671 -> Diterima dari 3818285481: ("node":1,"Lat":-2.9699875000000002,"Long":104.746067333,"Alt":40.8) - RSSI: -39 dBm
20:31:43.567 -> Diterima dari 3818285481: ("node":1,"Lat":-2.969989667,"Long":104.74607,"Alt":41.5) - RSSI: -39 dBm
20:31:48.507 -> Diterima dari 3818285481: ("node":1,"Lat":-2.96999,"Long":104.746072,"Alt":42) - RSSI: -38 dBm
20:31:53.596 -> Diterima dari 3818285481: ("node":1,"Lat":-2.969989667,"Long":104.746073667,"Alt":42) - RSSI: -39 dBm
20:31:58.519 -> Diterima dari 3818285481: ("node":1,"Lat":-2.9699906670000003,"Long":104.746076833,"Alt":41.6) - RSSI: -40 dBm
20:32:03.610 -> Diterima dari 3818285481: ("node":1,"Lat":-2.969992333,"Long":104.746083333,"Alt":42.4) - RSSI: -39 dBm
20:32:08.551 -> Diterima dari 3818285481: ("node":1,"Lat":-2.9699908299999998,"Long":104.746084667,"Alt":42.8) - RSSI: -39 dBm
20:32:13.717 -> Diterima dari 3818285481: ("node":1,"Lat":-2.9699904999999998,"Long":104.746087333,"Alt":43.1) - RSSI: -40 dBm
20:32:18.633 -> Diterima dari 3818285481: ("node":1,"Lat":-2.969989667,"Long":104.7460895,"Alt":43.3) - RSSI: -40 dBm
```

Gambar 4. 3 Data Hasil Pengujian Sensor Gps

4.5. Tabel Hasil Pengujian Sensor Gps

Pada hasil pengujian alat pada node 1 di jam 20.30.08 data yang didapatkan yaitu Garis Lintang -2.96, Garis Bujur 104.74, Ketinggian 36.5, jarak 5 m dan sinyal RSSI -40 dbm.

Tabel 4. 1 Hasil Pengujian Sensor Gps

No	Sender	Waktu	Garis Lintang
1	Node 1	20.30.08	-2.96
2	Node 1	20.30.13	-2.96
3	Node 1	20.30.18	-2.96
4	Node 1	20.30.23	-2.96
5	Node 1	20.30.28	-2.96
6	Node 1	20.30.33	-2.96
7	Node 1	20.30.38	-2.96
8	Node 1	20.30.43	-2.96
9	Node 1	20.30.48	-2.96
10	Node 1	20.30.53	-2.96

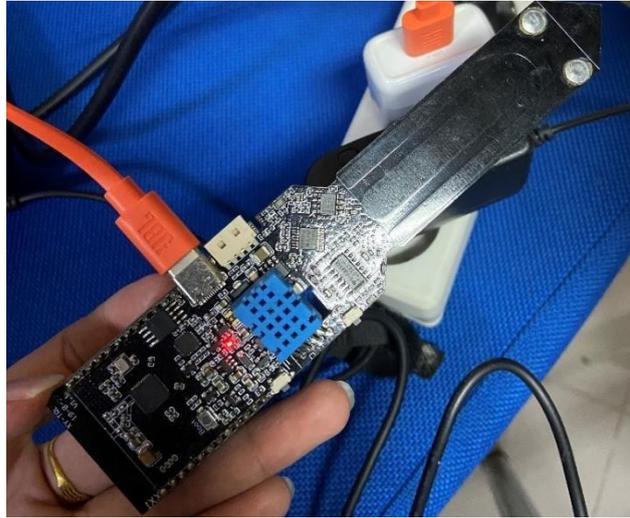
Tabel 4. 2 Hasil Pengujian Sensor Gps

Garis bujur	Ketinggian	Jarak	RSSI
104.74	36.5	5 m	-40 dbm
104.74	36.4	5 m	-42 dbm
104.74	36.7	5 m	-44 dbm
104.74	36.5	5 m	-43 dbm
104.74	36.3	5 m	-40 dbm
104.74	36.9	5 m	-39 dbm
104.74	36.8	5 m	-43 dbm
104.74	36.6	5 m	-40 dbm
104.74	36.5	5 m	-40 dbm
104.74	36.2	5 m	-41 dbm

Bisa dilihat pada tabel diatas, nilai di atas untuk mengetahui Garis lintang, Garis bujur, Ketinggian dengan jarak 5 m.

4.6. Pengujian Sensor T-Highrow

Pada pengujian ini esp 32 dan sensor t-highrow sebagai node 2 akan dihubungkan jika led berkedip berarti menandakan bahwa sudah terhubung dan akan diterima oleh node 1 dan node 3.



Gambar 4. 4 Sensor T-highrow

4.7. Hasil Pengujian Sensor T-Highrow

Sensor t-highrow sebagai node 2 berhasil mengirimkan data ke node receiver, pada gambar dibawah ini adalah hasil data yang berhasil dikirimkan.

```
COM6
20:47:10:2330 -> Diterima dari 697743877: {"node":3,"TempTHM":29.2,"HumTHM":69,"TempBMP":27.899999618530273,"PressBMP":1010.070001525878906,"Hum":68} - RSSI: -91 dBm
20:47:10:810 -> Changed connections
20:47:10:810 -> startHere: New Connection, nodeId = 3818285481
20:47:10:4.607 -> Diterima dari 4064630033: {"node":2,"Lux":1.6666666269302368,"Soil":65522,"Salt":0,"Temp":32.799999237060547,"Hum":68} - RSSI: -89 dBm
20:47:10:4.607 -> Adjusted time 300058597, Offset = 1071852
20:47:10:6.897 -> Diterima dari 3818285481: {"node":1,"Lat":-2.969953667,"Long":104.746060667,"Alt":25.11} - RSSI: -89 dBm
20:47:10:9.421 -> Diterima dari 697743877: {"node":3,"TempTHM":29.2,"HumTHM":69,"TempBMP":27.899999618530273,"PressBMP":1010.070001525878906,"Hum":68} - RSSI: -88 dBm
20:47:11.920 -> Diterima dari 3818285481: {"node":1,"Lat":-2.9699535,"Long":104.746059333,"Alt":24.6} - RSSI: -87 dBm
20:47:11.960 -> Diterima dari 4064630033: {"node":2,"Lux":0.8333333346511841,"Soil":65522,"Salt":0,"Temp":32.799999237060547,"Hum":68} - RSSI: -85 dBm
20:47:11.949 -> Diterima dari 3818285481: {"node":1,"Lat":-2.969960833,"Long":104.7460575,"Alt":25.8} - RSSI: -90 dBm
20:47:20.954 -> Diterima dari 697743877: {"node":3,"TempTHM":29.2,"HumTHM":69,"TempBMP":27.899999618530273,"PressBMP":1010.1300046820125} - RSSI: -90 dBm
20:47:22.582 -> Diterima dari 4064630033: {"node":2,"Lux":1.6666666269302368,"Soil":65522,"Salt":0,"Temp":32.900001525878906,"Hum":68} - RSSI: -90 dBm
20:47:23.286 -> Diterima dari 3818285481: {"node":1,"Lat":-2.969955667,"Long":104.746059667,"Alt":24.7} - RSSI: -93 dBm
20:47:23.286 -> Diterima dari 697743877: {"node":3,"TempTHM":29.3,"HumTHM":68.9,"TempBMP":27.899999618530273,"PressBMP":1010.0999755859375} - RSSI: -87 dBm
20:47:23.841 -> Diterima dari 3818285481: {"node":1,"Lat":-2.969951167,"Long":104.7460555,"Alt":21.6} - RSSI: -88 dBm
20:47:34.852 -> Diterima dari 3818285481: {"node":1,"Lat":-2.9699488,"Long":104.7460545,"Alt":20.9} - RSSI: -87 dBm
20:47:35.745 -> Diterima dari 4064630033: {"node":2,"Lux":2.5,"Soil":65522,"Salt":0,"Temp":32.700000762939453,"Hum":69} - RSSI: -89 dBm
20:47:35.743 -> Diterima dari 697743877: {"node":3,"TempTHM":29.2,"HumTHM":68.9,"TempBMP":27.899999618530273,"PressBMP":1010.0999755859375} - RSSI: -89 dBm
20:47:40.172 -> Diterima dari 3818285481: {"node":1,"Lat":-2.969947667,"Long":104.746051833,"Alt":20.8} - RSSI: -88 dBm
20:47:42.284 -> Diterima dari 4064630033: {"node":2,"Lux":2.5,"Soil":65523,"Salt":0,"Temp":32.400001525878906,"Hum":68} - RSSI: -90 dBm
20:47:42.284 -> Diterima dari 697743877: {"node":3,"TempTHM":29.3,"HumTHM":68.9,"TempBMP":27.899999618530273,"PressBMP":1010.1500244140625} - RSSI: -90 dBm
20:47:46.686 -> Diterima dari 3818285481: {"node":1,"Lat":-2.9699475,"Long":104.7460495,"Alt":20.8} - RSSI: -88 dBm
20:47:49.133 -> Diterima dari 4064630033: {"node":2,"Lux":2.5,"Soil":65522,"Salt":0,"Temp":32.400001525878906,"Hum":68} - RSSI: -88 dBm
20:47:51.510 -> Diterima dari 697743877: {"node":3,"TempTHM":29.3,"HumTHM":68.8,"TempBMP":28,"PressBMP":1010.1400146484375} - RSSI: -86 dBm
20:47:53.096 -> Diterima dari 3818285481: {"node":1,"Lat":-2.9699475,"Long":104.7460495,"Alt":20.8} - RSSI: -89 dBm
20:47:53.940 -> Diterima dari 697743877: {"node":3,"TempTHM":29.3,"HumTHM":68.9,"TempBMP":28,"PressBMP":1010.0999755859375} - RSSI: -90 dBm
20:47:55.726 -> Changed connections
20:47:59.474 -> Diterima dari 3818285481: {"node":1,"Lat":-2.9699475,"Long":104.7460495,"Alt":20.8} - RSSI: 0 dBm
```

Gambar 4. 5 Data Hasil Pengujian T-highrow

4.8. Tabel Hasil Pengujian Sensor T-Highrow

Pada saat pengujian alat pada jam 20.47.04 data yang didapatkan yaitu lux 1.66, soil 65522, salt 0, Suhu 32, Kelembaban 68, jarak 5 m dan kekuatan nilai sinyal RSSI -89 dbm.

Tabel 4. 3 Hasil Pengujian Sensor T-Highrow

No	Sender	Waktu	Lux	Soil
1	Node 2	20.47.04	1.66	65522
2	Node 2	20.47.04	2.96	65522
3	Node 2	20.47.06	2.96	65522
4	Node 2	20.47.09	0.83	65522
5	Node 2	20.47.11	2.96	65522
6	Node 2	20.47.15	1.66	65522
7	Node 2	20.47.18	2.96	65522
8	Node 2	20.47.20	2.96	65522
9	Node 2	20.47.22	2.96	65522
10	Node 2	20.47.23	2.96	65522

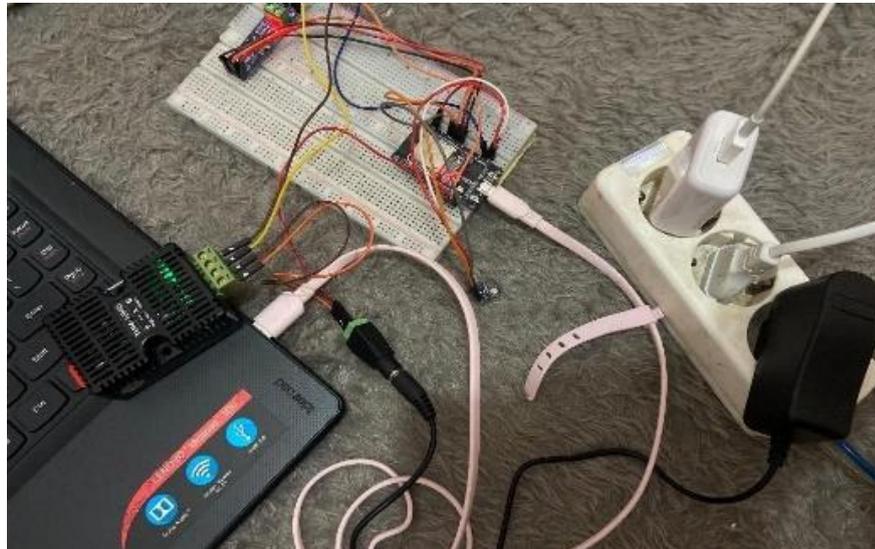
Tabel 4. 4 Hasil Pengujian Sensor T-Highrow

Salt	Suhu	Kelembaban	Jarak	RSSI
0	32	68	10 m	-89 dbm
0	32.79	68	10 m	-88 dbm
0	32.79	68	10 m	-85 dbm
0	32.79	68	10 m	-90 dbm
0	32.90	68	10 m	-93 dbm
0	32.90	68	10 m	-87 dbm
0	32.90	68	10 m	-88 dbm
0	32.90	68	10 m	-87 dbm
0	32.90	68	10 m	-89 dbm
0	32.90	68	10 m	-89 dbm

Bisa di lihat pada tabel 4.4 diatas tabel tersebut untuk mengetahui nilai suhudaan kelembaban tanah dengan jarak 10 m.

4.9 Pengujian Sensor THM-30MD dan BMP-180

Pada pengujian ini esp 32 dan sensor thm dan bmp sebagai node 3 akan dihubungkan, jika led berkedip berarti menandakan bahwa sudah terhubung dan akan diterima oleh node 1 dan node 2.



Gambar 4. 6 Sensor THM-30MD dan BMP-180

4.10. Hasil Pengujian Sensor THM-30MD dan BMP-180

Sensor thm dan bmp sebagai node 3 berhasil mengirimkan data ke node receiver, pada gambar dibawah ini adalah hasil data yang berhasil dikirimkan.

```
COM6
20:36:32.618 -> setLogLevel: ERROR | STARTUP |
20:36:32.618 -> STARTUP: init(): 0
20:36:32.618 -> STARTUP: AP tcp server established on port 5555
20:36:35.101 -> --> startHere: New Connection, nodeId = 697743877
20:36:35.101 -> Changed connections
20:36:37.159 -> Diterima dari 697743877: ("node":3,"TempTHM":0,"HumTHM":0,"TempBMP":27.700000762939453,"PressBMP":1009.869951171675) - RSSI: -90 dBm
20:36:41.932 -> Diterima dari 697743877: ("node":3,"TempTHM":29.7,"HumTHM":67.7,"TempBMP":27.600000381469727,"PressBMP":1009.8900146484375) - RSSI: -86 dBm
20:36:46.894 -> Diterima dari 697743877: ("node":3,"TempTHM":29.7,"HumTHM":67.5,"TempBMP":27.600000381469727,"PressBMP":1009.869951171675) - RSSI: -86 dBm
20:37:00.749 -> Diterima dari 697743877: ("node":3,"TempTHM":29.7,"HumTHM":67.4,"TempBMP":27.600000381469727,"PressBMP":1009.9500122707012) - RSSI: -92 dBm
20:37:02.764 -> Diterima dari 697743877: ("node":3,"TempTHM":29.7,"HumTHM":67.4,"TempBMP":27.600000381469727,"PressBMP":1009.929926757612) - RSSI: -90 dBm
20:37:05.548 -> Diterima dari 697743877: ("node":3,"TempTHM":29.7,"HumTHM":67.4,"TempBMP":27.600000381469727,"PressBMP":1009.9199829101562) - RSSI: -88 dBm
20:37:08.840 -> Diterima dari 697743877: ("node":3,"TempTHM":29.7,"HumTHM":67.4,"TempBMP":27.700000762939453,"PressBMP":1009.8800048828125) - RSSI: -87 dBm
20:37:13.419 -> Diterima dari 697743877: ("node":3,"TempTHM":29.7,"HumTHM":67.4,"TempBMP":27.700000762939453,"PressBMP":1009.8800048828125) - RSSI: -88 dBm
20:37:17.111 -> Diterima dari 697743877: ("node":3,"TempTHM":29.7,"HumTHM":67.6,"TempBMP":27.700000762939453,"PressBMP":1009.9300122707012) - RSSI: -85 dBm
20:37:21.924 -> Diterima dari 697743877: ("node":3,"TempTHM":29.7,"HumTHM":67.5,"TempBMP":27.700000762939453,"PressBMP":1009.8800048828125) - RSSI: -83 dBm
20:37:27.986 -> Diterima dari 697743877: ("node":3,"TempTHM":29.7,"HumTHM":67.5,"TempBMP":27.600000381469727,"PressBMP":1009.9099731445312) - RSSI: -86 dBm
20:37:32.022 -> Diterima dari 697743877: ("node":3,"TempTHM":29.7,"HumTHM":67.4,"TempBMP":27.600000381469727,"PressBMP":1009.859953315625) - RSSI: -84 dBm
20:37:37.110 -> Diterima dari 697743877: ("node":3,"TempTHM":29.7,"HumTHM":67.3,"TempBMP":27.600000381469727,"PressBMP":1009.849973589375) - RSSI: -88 dBm
20:37:41.912 -> Diterima dari 697743877: ("node":3,"TempTHM":29.8,"HumTHM":67.1,"TempBMP":27.700000762939453,"PressBMP":1009.8900146484375) - RSSI: -90 dBm
20:37:47.044 -> Diterima dari 697743877: ("node":3,"TempTHM":29.7,"HumTHM":67.1,"TempBMP":27.700000762939453,"PressBMP":1009.869951171675) - RSSI: -84 dBm
20:37:51.916 -> Diterima dari 697743877: ("node":3,"TempTHM":29.7,"HumTHM":67.1,"TempBMP":27.700000762939453,"PressBMP":1009.8800048828125) - RSSI: -86 dBm
20:37:57.182 -> Diterima dari 697743877: ("node":3,"TempTHM":29.8,"HumTHM":67.1,"TempBMP":27.700000762939453,"PressBMP":1009.9000244140625) - RSSI: -84 dBm
20:38:02.207 -> Diterima dari 697743877: ("node":3,"TempTHM":29.8,"HumTHM":67.1,"TempBMP":27.700000762939453,"PressBMP":1009.8900146484375) - RSSI: -85 dBm
20:38:07.081 -> Diterima dari 697743877: ("node":3,"TempTHM":29.8,"HumTHM":67.1,"TempBMP":27.700000762939453,"PressBMP":1009.9099731445312) - RSSI: -86 dBm
20:38:11.903 -> Diterima dari 697743877: ("node":3,"TempTHM":29.8,"HumTHM":67.1,"TempBMP":27.700000762939453,"PressBMP":1009.929926757612) - RSSI: -85 dBm
20:38:16.918 -> Diterima dari 697743877: ("node":3,"TempTHM":29.7,"HumTHM":67.1,"TempBMP":27.700000762939453,"PressBMP":1009.9000244140625) - RSSI: -87 dBm
20:38:21.999 -> Diterima dari 697743877: ("node":3,"TempTHM":29.7,"HumTHM":67.1,"TempBMP":27.600000381469727,"PressBMP":1009.849973589375) - RSSI: -85 dBm
20:38:26.946 -> Diterima dari 697743877: ("node":3,"TempTHM":29.7,"HumTHM":66.8,"TempBMP":27.600000381469727,"PressBMP":1009.8800048828125) - RSSI: -85 dBm
20:38:31.992 -> Diterima dari 697743877: ("node":3,"TempTHM":29.8,"HumTHM":67.1,"TempBMP":27.700000762939453,"PressBMP":1009.929926757612) - RSSI: -87 dBm
20:38:37.012 -> Diterima dari 697743877: ("node":3,"TempTHM":29.8,"HumTHM":67.1,"TempBMP":27.700000762939453,"PressBMP":1009.9199829101562) - RSSI: -87 dBm
```

Gambar 4. 7 Data Hasil Pengujian Sensor THM-30MD dan BMP-180

4.11. Tabel Hasil Pengujian Sensor THM-30MD dan BMP-180

Pada saat pengujian alat pada node 3 pada jam 20.36.41 data yang didapatkan yaitu suhu thm 29.7, kelembaban thm 67.7, suhu bmp 27.60, tekanan bmp 1009, jarak 5 m dan sinyal RSSI -88 dbm.

Tabel 4. 5 Hasil Pengujian Sensor THM-30MD dan BMP-180

No	Sender	Waktu	Suhu THM	Kelembaban THM
1	Node 3	20.36.41	29.7	67.7
2	Node 3	20.36.46	29.7	67.5
3	Node 3	20.37.00	29.7	67.4
4	Node 3	20.37.02	29.7	67.4
5	Node 3	20.37.05	29.7	67.4
6	Node 3	20.37.08	29.7	67.4
7	Node 3	20.37.13	29.7	67.4
8	Node 3	20.37.17	29.7	67.6
9	Node 3	20.37.21	29.7	67.5
10	Node 3	20.37.27	29.7	67.5

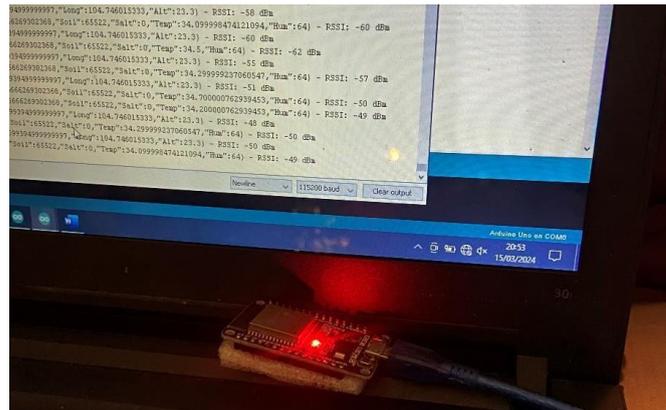
Tabel 4. 6 Hasil Pengujian Sensor THM-30MD dan BMP-180

Suhu BMP	Tekanan BMP	Jarak	RSSI
27.60	1009	15 m	-88 dbm
27.60	1009	15 m	-86 dbm
27.60	1009	15 m	-92 dbm
27.60	1009	15 m	-90 dbm
27.60	1009	15 m	-88 dbm
27.70	1009	15 m	-87 dbm
27.70	1009	15 m	-88 dbm
27.70	1009	15 m	-85 dbm
27.70	1009	15 m	-83 dbm
27.70	1009	15 m	-86 dbm

Bisa dilihat pada tabel diatas, nilai diatas untuk mengetahui suhu kelembaban Thm 27.60 dan tekanan Bmp 1009 dengan jarak 15 m dan RSSI -88dbm

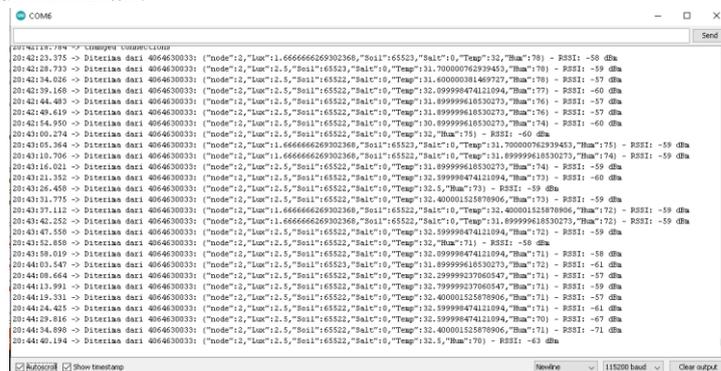
4.12. Data Hasil Pengujian Keseluruhan Sensor

Pada gambar 4.8 dan 4.9 dibawah ini adalah tahap terakhir esp 32 untuk mengetahui hasil pengujian keseluruhan sensor.



Gambar 4. 8 Esp 32

Gambar dibawah ini adalah data keseluruhan yang berhasil dikirimkan.



Gambar 4. 9 Data Hasil Keseluruhan Sensor

1. Suhu udara dan tanah; data suhu membantu dalam pemantauan kondisi lingkungan yang optimal untuk pertumbuhan tanaman.
2. Kelembaban udara dan tanah; informasi kelembaban membantu dalam mengelola irigasi dan memastikan kondisi tanah yang sesuai.
3. pH Tanah; data ph membantu dalam menyesuaikan tingkat keasaman tanah

untuk memaksimalkan kesehatan tanaman.

4. Kadar nutrisi tanah; informasi tentang nutrisi tanah membantu dalam merencanakan pemupukan yang efisien
5. Intensitas cahaya; data ini membantu dalam mengoptimalkan pencahayaan dan pengaturan tata letak tanaman.

Penjelasan data hasil keseluruhan sensor ini akan memberikan gambaran lengkap tentang kondisi lingkungan dan pertumbuhan tanaman disistem smart farming yang menggunakan jaringan mesh.