**Team name:** Byte Builders

**List of team members:**

Christian Mandujano Borjas, Oluwatosin Omiteru, Thong Dang

**Project title:** Biometric Packet sniffer

**Date started:** February 16th, 2025

**Target date:** May 7th, 2025

**Progress of work (% completed):** 22%

**How much of the work is completed? Give a bulleted list of completed items.**

|  |
| --- |
| * [Assign team roles](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/6) |
| * [Set up development environment](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/3) |
| * [Verify microcontroller platform](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/5) |
| * [Research wire diagram for the final project.](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/33) |
| * [Define overall system architecture](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/4) |
| * [Build dashboard (web or LCD)](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/17) * [Select and wire biometric module (fingerprint or camera)](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/12) |

**Give a bulleted list of remaining items.**

|  |
| --- |
|  |
|  |
| * [**Handle unauthorized access with logging**](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/25) |
| * [**Create fallback or timeout logic**](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/16) |
| * [**Implement lock/unlock mechanism**](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/15) |
| * [**Securely store biometric templates**](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/14) |
| * [**Program enrollment and verification logic**](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/13) |
| * [**Research and select packet sniffing method/library**](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/7) |
| * [**Set up capture module (serial, WiFi, Ethernet)**](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/8) |
| * [**Implement AES-256 encryption for biometric/logs**](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/24) |
| * [**Secure UI access through session token**](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/20) |
| * [**Add session history and export feature**](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/26) |
| * [**Add delay logic via timers/loops (loop-delay tested)**](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/23) |
| * [**Implement I/O interrupts for triggers**](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/22) |
| * [**Create suspicious activity alert system**](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/19) |
| * [**Configure timer interrupts (demo-ready for peer review!)**](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/21) |
| * [**Parse captured data (source IP, protocol, payload)**](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/9) |
| * [**Display live stats post-authentication**](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/18) |
| * [**Filter and log packets based on rules (HTTP, FTP, DNS)**](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/10) |
| * [**Encrypt and securely store packet logs (AES-256)**](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/11) |
| * [**Prepare final GitHub submission and upload report**](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/32) |
| * [**Integrate all components + system test (peer review day!)**](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/30) |
| * [**Record live demo, finalize code, review all docs**](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/31) |
| * [**Confirm all ISR and interrupt logic under load**](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/29) |
| * [**Simulate traffic and verify logs (peer review day!)**](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/28) |
| * [**Test biometric verification and spoof attempts**](https://github.com/CMBorjas/Biometrics_Packet_Sniffer/issues/27) |

**List any challenges experienced so far.**

1. ESP32-WROOM-32D documentation sheet not readily available
2. I2C double channel step up for Arduino
3. LCD integration
4. Integrate R307S

**How were the challenges handled?**

1. **ESP32-WROOM-32D documentation sheet not readily available**
   1. Documentation sheet is cross referenced with ESP32-Dev-Module. We have to look at both boards and verify the GPIO pins and which are the same and which differ in the module.
2. **I2C double channel step up for Arduino**
   1. Arduino documentation for spark fun is used as the example to be able to create a serial transmission. An example of how to use a 3.3V volt module for spark fun is used to be able to create a bridge for the ESP32 module.
3. **LCD integration**
   1. LCD integration was chosen as the screen is readily available to be able to show user output.
4. **Integrate R307S**
   1. Wire needs to be able to be adapted to be added to a breadboard. At the current moment the module is well documented and added to the repository. The documentation can show how to add the module to the current setup.

Any other comments.