Neural-Eye

Team Members & roles

- Andrei Tulpan - Backend, Fronted, DevOps
- Theodor Paraschiv - Backend, Frontend, OCR
- Traian Enache - esp-32 cam
- Robert Pancu - Backend, Testing
- Andrei Ion Toader - DevOps, Testing

Project Summary

Project Overview:

Neural-Eye is a web-based platform designed to receive, process, and store images transmitted via MQTT from ESP32-CAM devices.
The platform offers functionalities such as user authentication, device management, camera control, image processing.
Users can manage devices, adjust camera settings, process images, and download results through an intuitive web interface.

Default OSSF critically score result:

default_score: 0.19494

Functionality, Documentation, Execution

- Working Features

- User Authentication: Secure login system for users to access the platform.
- Device Management: Monitor ESP32-CAM devices.
- Image Processing: Apply OCR and extract text from image on demand.
- Web Interface: User-friendly dashboard to interact with all features.

- Developer & User Documentation

- README.md: Comprehensive guide on setting up and using the platform.

- API Documentation: Detailed API endpoints and usage examples.
- User Manual: Step-by-step instructions for end-users to navigate the platform.

CI/CD Evidence or Execution Steps

Security & Compliance

- Threat Modeling & Mitigations

- Identified Risks:
  - Unauthorized access to devices.
  - Data interception during transmission.
- Mitigations:
  - Implemented HTTPS for secure communication.
  - JWT tokens for user authentication.

- MISRA / CERT Compliance

- Static Analysis Summary:
  - Used tools like Cppcheck to ensure code quality.
  - Addressed all critical warnings and errors.

- Testing and Coverage

- Testing Strategy:
  - Unit test for individual components.
  - Tested with Jest.

- SBOM & Dependencies

- Dependencies vulnerability Check Summary: No known vulnerabilities detected in dependencies.

- Fixing Own Vulnerabilities

- Issue: Discovered a vulnerability in the image processing module allowing buffer overflow.
- Fix: Implemented input validation and buffer size checks.

Team Contributions

Team Member	Lines Added	Lines Removed	Number of Commits
Andrei Tulpan	18687	754	84
Theodor Paraschiv	1192	498	28
Traian Enache	355	33	1
Robert Pancu	261	15	8
Andrei Ion Toader	144	126	16

OSSF Criticality Score

PS > criticality_score -gcp-project-id=norse-sequence-351721
https://github.com/andreitulpan/Neural-Eye

repo.url: https://github.com/andreitulpan/Neural-Eye
repo.language: TypeScript
repo.license: Other
repo.star_count: 1
repo.created_at: 2025-03-12T10:34:59Z
repo.updated_at: 2025-05-25T19:01:29Z
legacy.created_since: 2
legacy.updated_since: 0
legacy.contributor_count: 6
legacy.org_count: 0
legacy.commit_frequency: 1.81
legacy.recent_release_count: 0
legacy.updated_issues_count: 0
legacy.closed_issues_count: 0
legacy.issue_comment_frequency: 0
legacy.github_mention_count: 3
depsdev.dependent_count:
default_score: 0.19494

Appendices

Cppcheck output:

```
robert@RPANCU-NB:~/Facultate/Neural-Eye/ESP32/MQTT-CAM/src$ cppcheck --enable=all main.cpp
Checking main.cpp ...
main.cpp:204:0: style: The function 'loop' is never used. [unusedFunction]

^
main.cpp:189:0: style: The function 'setup' is never used. [unusedFunction]

^
nofile:0:0: information: Cppcheck cannot find all the include files (use --check-config for details) [missingInclude]
robert@RPANCU-NB:~/Facultate/Neural-Eye/ESP32/MQTT-CAM/src$
```

The remaining messages are style warnings and an information message about missing includes.

These are non-critical and do not affect the correctness of the code.

No errors or critical warnings remain.

```
andrei@Andrei:/mnt/c/Facultate/Neural-Eye-main/Frontend$ npm test

> vite_react_shadcn_ts@0.0.0 test
> jest

 PASS   src/components/dashboard/RecentEventsCard.test.tsx (21.785 s)
 PASS   src/components/layout/AppLayout.test.tsx (22.108 s)
 PASS   src/components/dashboard/DashboardStatsCard.test.tsx (22.161 s)
 PASS   src/components/layout/Sidebar.test.tsx (22.432 s)
 PASS   src/components/dashboard/DeviceStatusOverview.test.tsx (22.475 s)
 PASS   src/components/layout/Navbar.test.tsx (22.94 s)

Test Suites: 6 passed, 6 total
Tests:       11 passed, 11 total
Snapshots:   0 total
Time:        25.057 s
Ran all test suites.
andrei@Andrei:/mnt/c/Facultate/Neural-Eye-main/Frontend$
```