# WEEK 4 REPORT – DEPLOYMENT AND PRODUCTION SETUP

## Objectives

- Deploy the **Whitefly Detection System** into a production-ready environment.
- Implement **continuous integration and delivery (CI/CD)** using GitHub Actions.
- Set up **monitoring, logging, and rollback** support for reliability.

## Summary of Activities

*1. GitHub Actions (CI/CD Pipeline)*

- **Purpose:** Automated the entire build, test, and deployment process for both frontend and backend.
- **Configuration:** .github/workflows/ci-cd.yml
- **Functions:**
    - Code checkout, dependency installation, and project build.
    - Docker image creation for the Django backend.
    - Deployment triggers for both **Render (backend)** and **Vercel (frontend)**.
- **Enhancements:**
    - Rollback hooks configured by *Aine Levi* to restore previous builds in case of deployment failure.

*2. Vercel (Frontend Deployment)*

- **Purpose:** Hosted and deployed the React-based frontend.
- **Action Used:** vercel/action-deploy@v1
- **Features:**
    - Automatic builds from GitHub.
    - Global CDN distribution for faster access.
    - Managed environment variables for API connectivity.

*3. Render (Backend Deployment)*

- **Purpose:** Hosted the Django backend using Docker containers.
- **Action Used:** johnbeynon/render-deploy-action@v0.0.8
- **Highlights:**
    - Database integration and automatic scaling.
    - Rollback hooks for stable recovery during deployment errors.

*5. Monitoring and Logging*

- We configured **Django logging handlers** for build and backend error tracking.
- *I*ntegrated **Prometheus** and **Grafana** dashboards for monitoring uptime, performance, and system health.

*6. ClickUp Updates*

- Tasks for **production deployment**, **rollback setup**, and **monitoring configuration** were marked as complete, indicating the successful completion of all Week 4 milestones.

## Deliverables

- Fully automated CI/CD workflow
- Frontend deployed on Vercel
- Backend deployed on Render
- Monitoring and logging dashboards active
- Rollback mechanism for deployment safety

## Challenges & Future Plans

- Encountered **memory limitations** on Render, causing occasional response delays.
- The team plans to **optimize model handling and build performance** in Week 5.

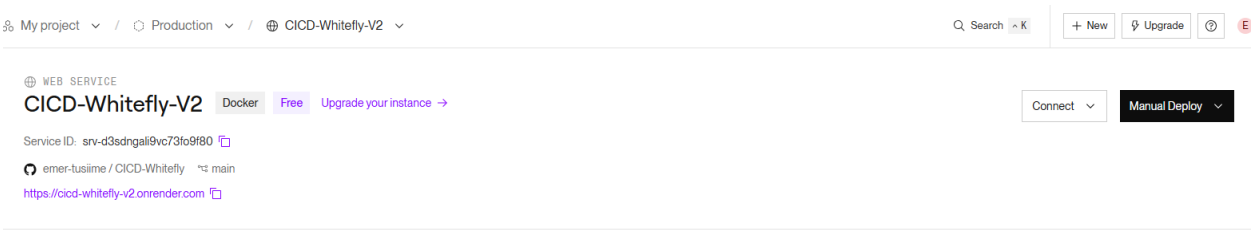


*Figure 1Setting up Deplyoment Environment*

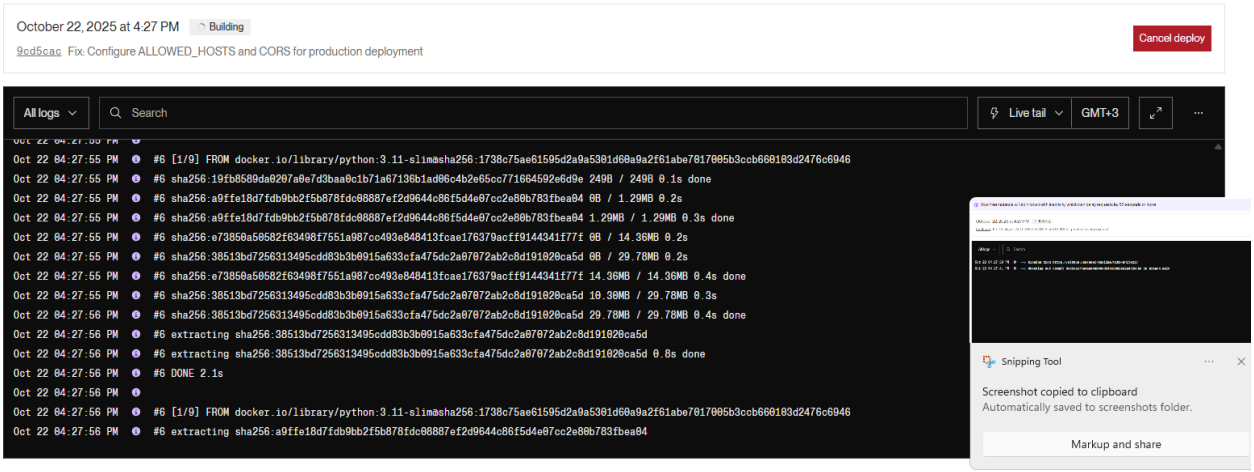


*Figure 2 During the Proyes of auto build and testing*


*Figure 3 Successful deployment and the system is running*

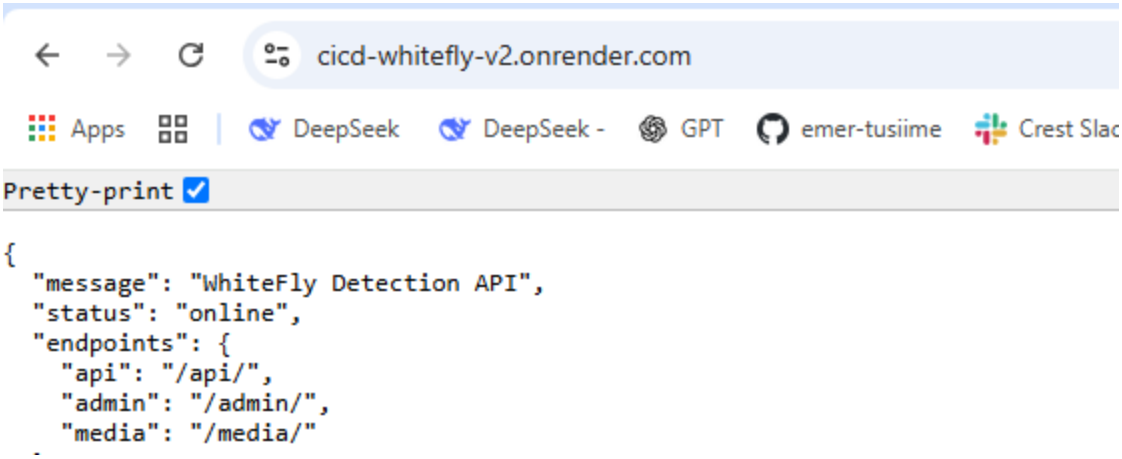


*Figure 4 Ssytem is running and online*

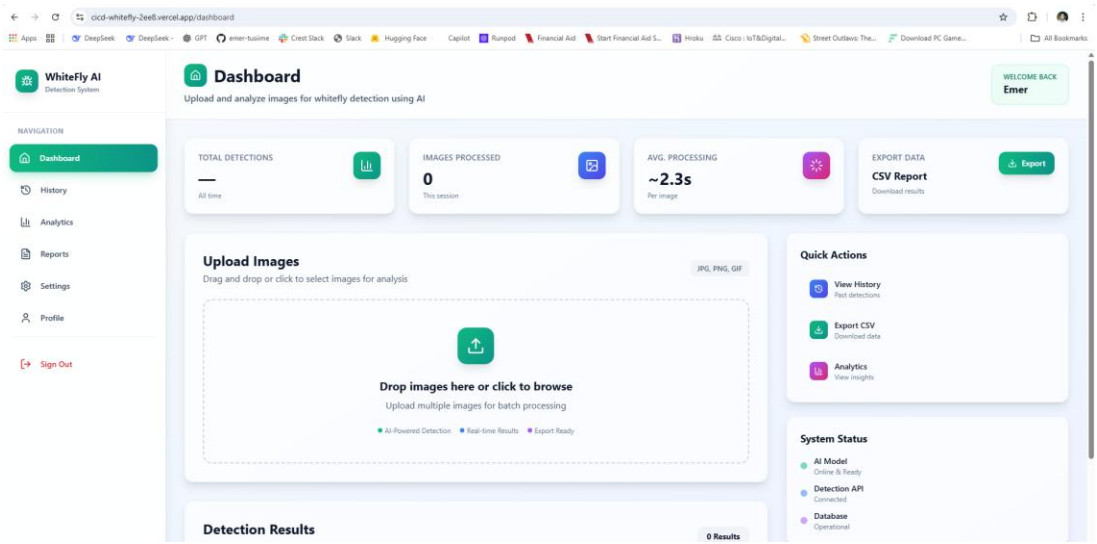


*Figure 5 Application runing after successfull deployment*