◆ Project: *Counter-Drone IQ Data Detection (Phase 1)*

Vision (Product Goal):

Develop a working pipeline to **capture, visualize, and analyze IQ data** using RTL-SDR, moving towards drone signal characterization.

Value Delivery:

By the end of 12 weeks, you'll have a working repo with reproducible scripts that:

1. Capture IQ samples from RTL-SDR.
2. Stream/process samples in real time.
3. Perform FFT and visualize signals.
4. Document findings → towards counter-drone detection.

◆ Agile Setup

- **Framework:** Scrum with Kanban board for tasks.
- **Timebox:** 2-week sprints.
- **Cadence:** Daily check-ins (short), Weekly sprint reviews, Sprint retrospectives.
- **Increment Strategy:** Each sprint must produce a working piece (code, visualization, analysis, repo update).

◆ Sprint 1 (Weeks 1–2) → *Kick-off & First Capture*

Sprint Goal:

👉 "Be able to capture and visualize stored IQ samples with RTL-SDR in Python."

Sprint Backlog (User Stories & Tasks):

- ☐ **Set up Kanban Board** (To Do, In Progress, Done).
- ☐ **Confirm Environment** – RTL-SDR working in Python (done ✅).
- ☐ **Capture IQ Samples** – Write script to record samples into `.bin` file.
- ☐ **Read IQ File** – Parse samples in Python (separate I/Q).
- ☐ **Visualize Waveform** – Plot time-domain IQ data.
- ☐ **FFT Spectrum** – Plot frequency-domain spectrum of captured file.
- ☐ **Documentation** – Notes + GitHub push.

Definition of Done:

- At least one `.bin` IQ capture file saved.
- Code to load and plot IQ data (time + FFT).
- Repo updated with scripts & README.

🔷 Sprint 2 (Weeks 3–4) → *Streaming & Real-Time Plots*

Sprint Goal:

👉 "Stream live IQ data from RTL-SDR and visualize in real time."

🔷 Our Kanban Flow

To Do → In Progress → Review → Done
(We'll keep updating this as tasks move across.)