



Field Data Acquisition Requirements

To: Drone Operations Team

From: AI Engineering Team

Subject: Specifications for Dataset Collection (Cattle Counter)

To ensure the success of the AI model training (Fine-Tuning), please adhere to the following specifications for video/image collection. The quality of the model depends entirely on the quality of these inputs.

1. Flight Parameters

- **Camera Angle (Gimbal): Strictly 90° (Nadir/Zenithal).** The camera must point straight down. Do not use oblique angles (45°), as they introduce occlusion.
- **Altitude:** Maintain a consistent altitude between **15m and 30m**.
 - *Goal:* The cows should be clearly visible but not fill the entire screen. We need to see the separation between animals.
- **Speed:** Slow and steady (Cinematic Mode). Avoid sudden yaw (rotation) or rapid acceleration to prevent motion blur.
- **Flight Path:** Fly strictly over the herd or along the path. Linear passes are preferred over circular orbits.

2. Video Specifications

- **Resolution:** Minimum **1080p (1920x1080)**. 4K is preferred if storage allows.
- **Frame Rate:** 30 FPS or 60 FPS.
- **Format:** .mp4 or .mov.
- **Quantity:** We need **5 to 10 short clips** (15-30 seconds each).

3. Environmental Conditions (Diversity)

We need the AI to learn to see cows in different situations. Please try to capture:

- **Lighting:**
 - **Ideal:** Overcast/Cloudy days (soft shadows).
 - **Acceptable:** Early morning or late afternoon.
 - **Avoid:** High noon (12:00 PM) with harsh sun, as strong shadows can be mistaken for a second cow by the AI.
- **Backgrounds:**
 - Green grass.
 - Dry soil/Dirt roads.
 - Concrete/Feedlots (if available).
- **Subjects:**
 - Try to capture different herd colors (Black, White, Brown/Red) if possible.
 - Capture different densities (dispersed cows vs. grouped cows).

4. "Negative" Samples (Optional but Helpful)

If possible, record 5-10 seconds of the field **without cows** (just grass, rocks, or trees). This helps us teach the AI what *is not* a cow to reduce false positives.

Summary Checklist for Operator:

- [] Angle is 90° down.
- [] Altitude is consistent (20m avg).
- [] No motion blur.
- [] Variety of backgrounds recorded.