Real-Time Mosquito Detection Algorithm

Start: Initialize System & Load YOLOv8 Model

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Get Input Video Frame (Real-time)

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Pre-process Frame (Grayscale, Gaussian Blur)

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Apply Background Subtraction (Foreground Mask)

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Morphological Operations (Erode, Dilate)

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Find Contours of Moving Objects

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Are there Potential ROIs (Filtered by Area)?

No → Continue to Next Frame

Yes → Run YOLOv8 Inference on Current Frame

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Filter YOLO Detections by ROI Overlap

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Visualize Final Mosquito Detections (Bounding Box, Label, Confidence)

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Loop: Process Next Frame

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End: Release Resources