BMS INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(Affiliated to VTU)

Computer Vision

AIML, Section A

HW – 1

Under the guidance of

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Team Members

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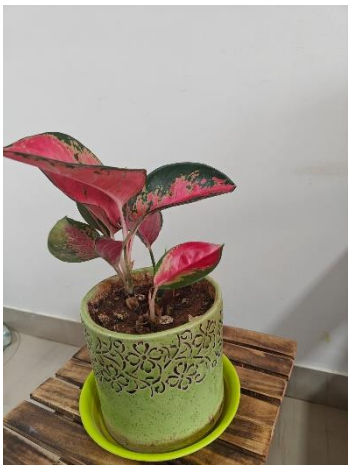
Phone 1: OnePlus 11



Dim **High resolution** **Blur** **Bright**

Key Specifications

- Camera: 50 MP main + 48 MP ultra-wide + 32 MP telephoto
- Resolution Modes: Standard & High-Resolution
- Features: OIS (Optical Image Stabilization), Night mode, HDR

Object Chosen: Plant (indoor)

Photos Taken Under Different Conditions:

1. **Dim Light** → Image appears grainy, slight loss of details in leaves.
2. **Bright Light** → Clear image, vibrant green colors, sharp details.
3. **High Resolution Mode** → Finer details of veins on leaves visible, zoom-in retains clarity.
4. **Motion Blur** → When plant moved slightly, leaves blurred and lost edges.

Observation & Comparison:

- Bright light and high-resolution images are sharp, detailed, and easily recognizable.
- Dim light introduces noise → harder for computer vision to detect features like leaf edges.

- Blur condition makes recognition difficult → plant edges merge with background.

Computer Vision Perspective:

- **Easier to recognize:** Bright light & High-resolution images.
- **Harder to recognize:** Dim light & Blur images.

Phone 2: Redmi Note 13

Bright

Dim

High resolution

Blur

Key Specifications

- Camera: 200 MP main + 8 MP ultra-wide + 2 MP macro
- Resolution Modes: Normal (12 MP binned) & Full 200 MP
- Features: AI enhancement, HDR, EIS

Object Chosen: Water Bottle (outdoor)

Photos Taken Under Different Conditions:

1. **Sunlight (Bright Outdoor)** → Very clear, high contrast, reflections visible on bottle.
2. **Shade** → Slightly dull colors, but bottle outline still sharp.
3. **High Resolution Mode** → Labels/text on bottle readable when zoomed.
4. **Motion Blur** → Shape distorted, text unreadable, bottle edges unclear.

Observation & Comparison:

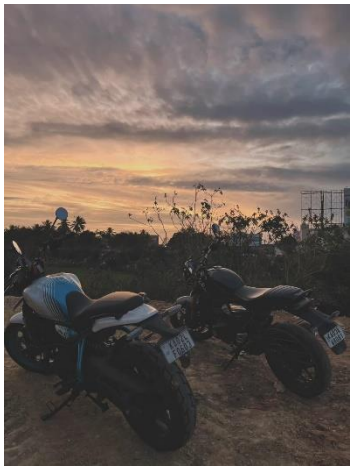
- Sunlight image is crisp, best color representation.

- Shade image slightly dull but still good.
- High-res mode captures fine text details → useful for OCR.
- Blur image makes object detection difficult.

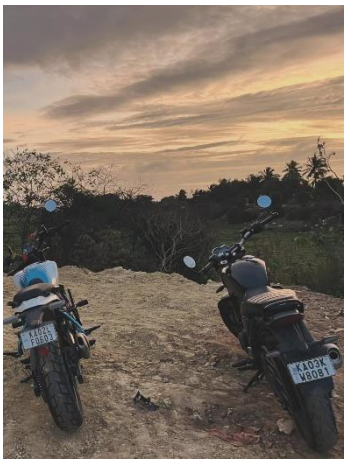
Computer Vision Perspective:

- **Easier to recognize:** Sunlight & High-resolution (clear edges + fine details).
- **Harder to recognize:** Blur (shape loss) and Shade (less contrast).

Phone 3: Realme GT 6T



Blur



Dim

High Resolution

Bright

Key Specifications

- Camera: 50 MP Sony LYT-600 sensor + 8 MP ultra-wide
- Resolution Modes: Standard & AI-enhanced
- Features: OIS, HDR, 4K video, AI night mode

Object Chosen: Bike

Photos Taken Under Different Conditions:

1. **Bright Light** → Clear, shiny reflections on bike body, sharp edges.
2. **Dim Light** → Loss of detail in dark areas, background merges with object.
3. **High Resolution Mode** → Number plate, logos, small parts of bike captured with clarity.

4. **Motion Blur** → Moving bike caused blurred wheels and stretched outlines.

Observation & Comparison:

- Bright light captures best details (textures, reflections).
- Dim light reduces object separation from background.
- High-res mode useful for recognizing fine details like license plate.
- Motion blur makes object recognition (especially wheels) very hard.

Computer Vision Perspective:

- **Easier to recognize:** Bright light & High-resolution.
- **Harder to recognize:** Dim light & Blur.

Final Comparison Across All Phones

- **Lighting:** Bright sunlight gives the clearest results across all devices → best for computer vision.
- **Resolution:** High-resolution images preserve details (text, edges, patterns) → more useful for recognition tasks.
- **Motion Blur:** Consistently reduces recognition accuracy → edges distorted.
- **Dim Light / Shade:** Introduces noise or dullness → recognition becomes less reliable.