

WaterMark Document

watermark



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Net Height Measurement software

ADRDE, DRDO

Failure cases and Solution

1. Night-time object detection failure

Failure Condition: Objects are hard to detect due to insufficient light, resulting in noisy and unclear frames.

Solution :

- **Filters Used:** gaussian filter, laplacian of gaussian.
- **Explanation:** Gaussian filtering reduces noise in low-light frames, and Laplacian of Gaussian emphasizes edges, enhancing object visibility in dark conditions.

2. Poor stream quality (low resolution)

Failure Condition: The camera feed appears grainy or pixelated, making it difficult to discern objects or track details.

Solution :

- **Function Used:** merge hdr.
- **Explanation:** HDR merging combines images with varying exposure levels to produce a single, high-resolution output, ensuring clear and detailed streams.

Night-time object detection

Activities Google Chrome

Chat | Ganesh Kandikond x | Mail - Rakesh M - Outlook x | Live Feeds

Screenshot captured
You can paste the image from the clipboard.

Jan 8 18:34

127.0.0.1:4400/livefeeds

NET HEIGHT MEASUREMENT SOFTWARE

Menu



This screenshot shows a night-time video feed displayed in a web browser window titled 'NET HEIGHT MEASUREMENT SOFTWARE'. The feed captures a scene with a building in the background, some trees in the foreground, and a car parked on the street. A small green box highlights a person standing near the car. A tooltip at the top right of the browser window says 'Screenshot captured' and 'You can paste the image from the clipboard.' The browser's address bar shows the URL '127.0.0.1:4400/livefeeds'. The top status bar indicates the date and time as 'Jan 8 18:34'. The left side of the screen features a vertical dock with various application icons, including a terminal, file manager, and system settings. The overall interface has a dark theme.

3. Over exposed frames in sunlight

Failure Condition: Bright sunlight leads to washed-out frames, where objects become indistinguishable due to excessive brightness.

Solution :

- **Filter Used:** gamma correction.
- **Explanation:** Dynamically adjusts the brightness to correct overexposure, ensuring objects are visible in high-light environments.

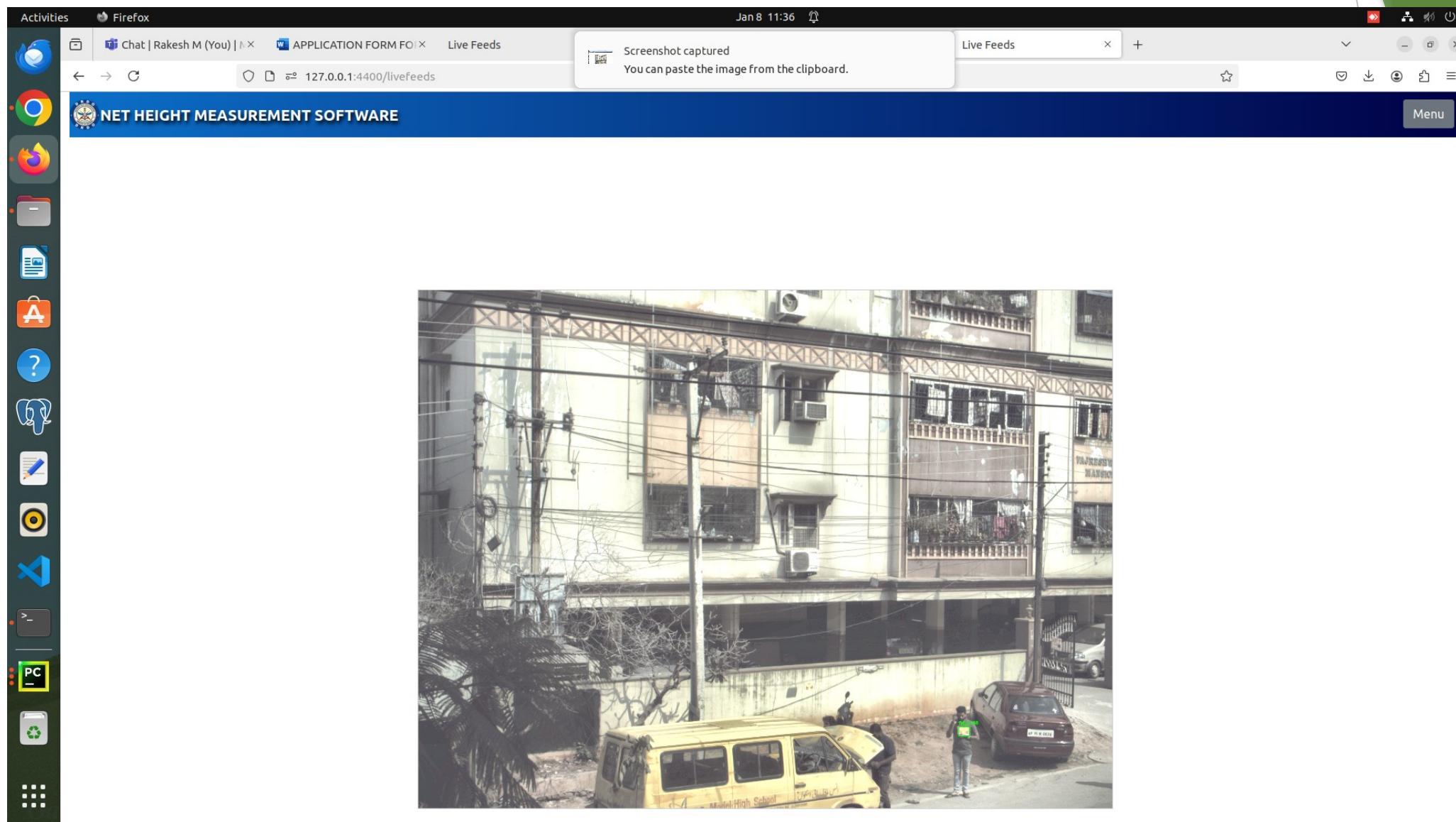
4. Improper exposure during day or night

Failure Condition: Frames are either too dark or too bright due to static exposure settings, reducing object detectability.

Solution :

- **Function Used:** exposure and gain.
- **Explanation:** Dynamically calibrates exposure and gain based on ambient light levels to maintain clarity across various lighting conditions.

object detection in Sunlight



5. Motion blur in moving objects

Failure Condition: Fast-moving objects appear blurred, making detection unreliable.

Solution :

Function Used: motion deblur.

Explanation: Reduces motion blur by applying a deblurring algorithm that enhances the sharpness of moving objects.

6. Low visibility in foggy or rainy weather

Failure Condition: Weather conditions like fog or rain obscure the camera view, making object detection ineffective.

Solution :

Filter Used: defog.

Explanation: Enhances visibility by reducing haze or fog effects, improving contrast and clarity in challenging weather.

7. Rapid changes in lighting (e.g., entering tunnels)

Failure Condition: Sudden changes in light intensity result in either very dark or very bright frames.

Solution :

- **Function Used:** adaptive histogram equalization.
- **Explanation:** Equalizes the frame's brightness dynamically, ensuring consistent visibility despite rapid lighting changes.

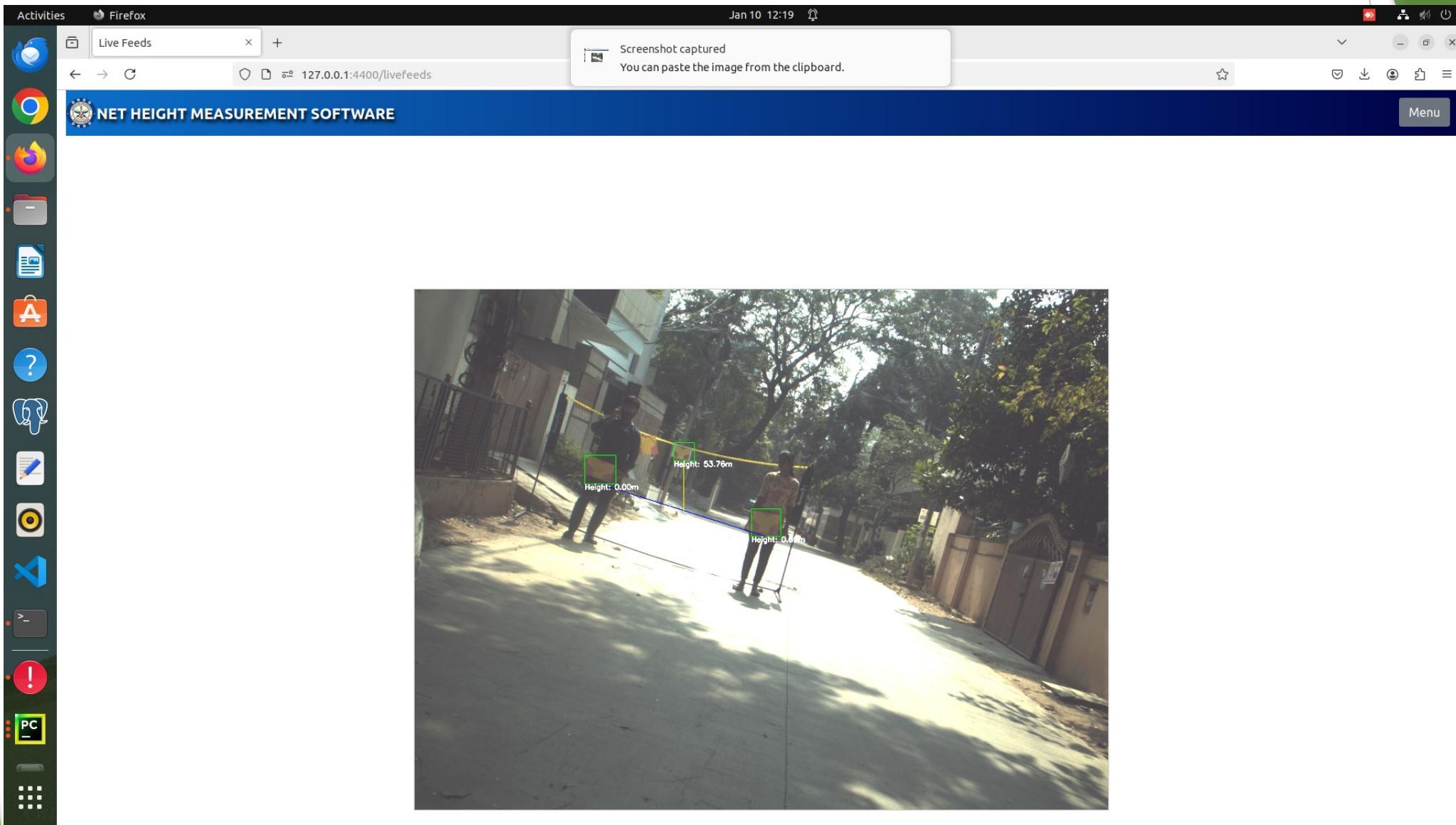
8. Frame drops during high motion scenes

Failure Condition: High-speed motion causes frame processing delays, resulting in dropped frames.

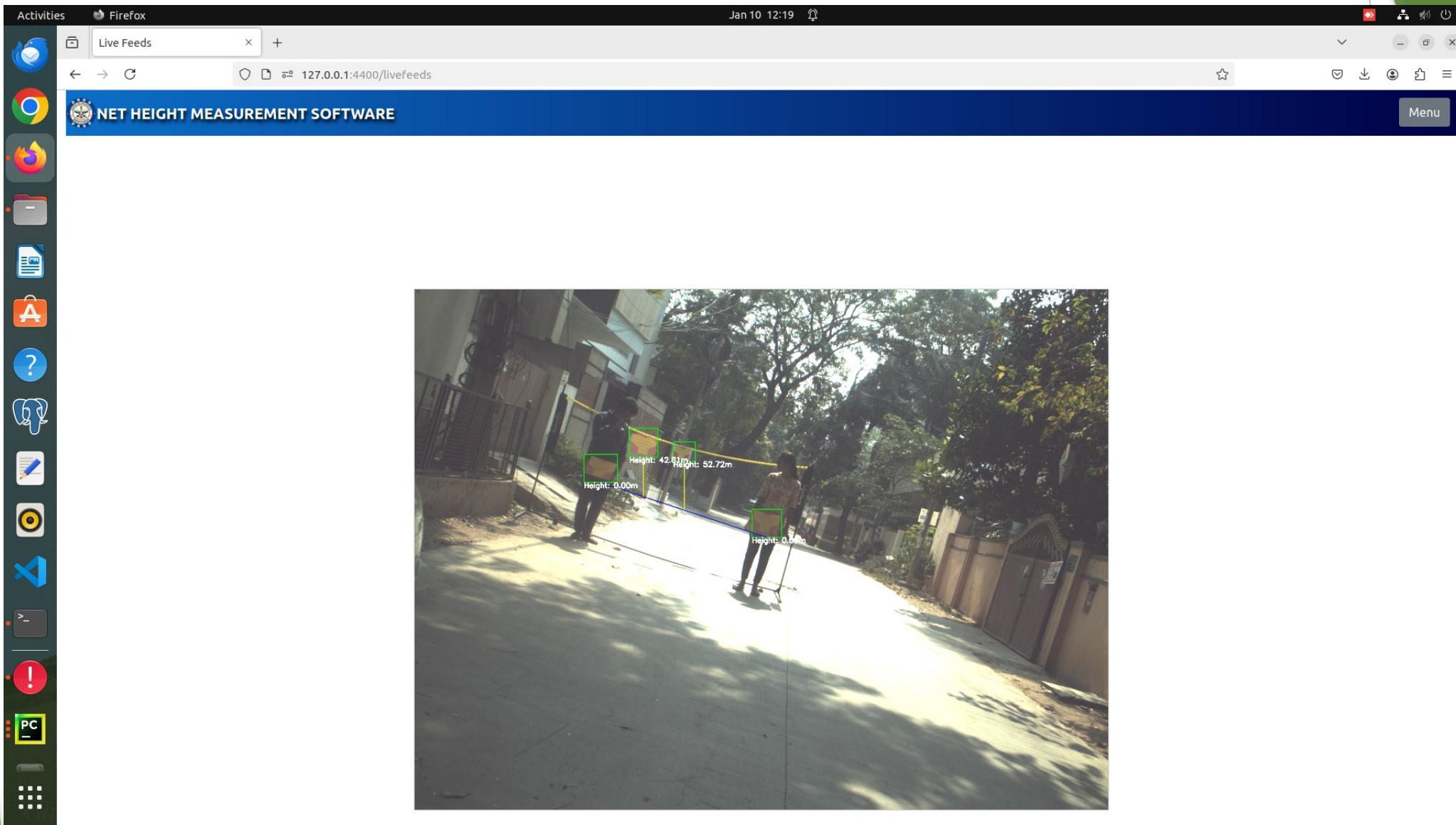
Solution :

- **Function Used:** frame buffering.
- **Explanation:** Optimizes frame capture and buffering to handle high-motion scenes without losing frames.

Output



Output



Output

Activities Google Chrome

Chat | Ganesh Kandikond x | Mail - Rakesh M - Outlook x | Live Feeds

Jan 8 18:34

Screenshot captured
You can paste the image from the clipboard.

127.0.0.1:4400/livefeeds

NET HEIGHT MEASUREMENT SOFTWARE

Menu



A screenshot of a night scene captured by a software application titled "NET HEIGHT MEASUREMENT SOFTWARE". The image shows a multi-story building with multiple levels of windows and balconies. In front of the building, there is a parking area with several cars, including a black SUV and a white car. A few people are visible near the bottom right of the frame. The sky is dark, and the overall atmosphere is nighttime. The software interface includes a navigation bar at the top with tabs for "Chat", "Mail", "Live Feeds", and the current page "127.0.0.1:4400/livefeeds". A "Screenshot captured" message with a clipboard icon is displayed in a tooltip. On the left side, there is a vertical dock with various icons for other applications like Chat, Mail, Live Feeds, and a menu. The date and time "Jan 8 18:34" are also visible at the top of the window.