

# Investigated Area

## **Dynamic Beam Control:**

- Maximize the road visibility without causing glare

## **Environmental Detection:**

- Use sensors and cameras to detect road conditions and obstacles.
- Adjusting headlights for varying environmental scenarios

## **Vehicle Positioning:**

- Enhancing visibility on curves and slopes using the Vehicle Positioning Subsystem (VPS).

## **Human-Machine Interface (HMI):**

- Providing driver notifications for system errors, auto mode, or status updates.

## **Real-Time Adaptation:**

- Ensuring quick responses to dynamically changing road and traffic conditions.

## **Safety and Reliability:**

- Revert to low beams during malfunctions.

# Project Constraints

- The system will only function when the user sets the headlight mode to the ADB setting.
- All cameras and sensors required for the Environmental Detection Subsystem (EDS) must remain unobstructed.
- The system automatically deactivated and switches to standard low-beam mode in case of errors or malfunctions.
- The cybersecurity subsystem must be able to properly detect and respond to cybersecurity threats.
- Front-facing cameras and radar sensors capable of detecting objects up to 200 meters.