ACCIDENT PREVENTION SYSTEM AT BLIND TURNS

Presented by -

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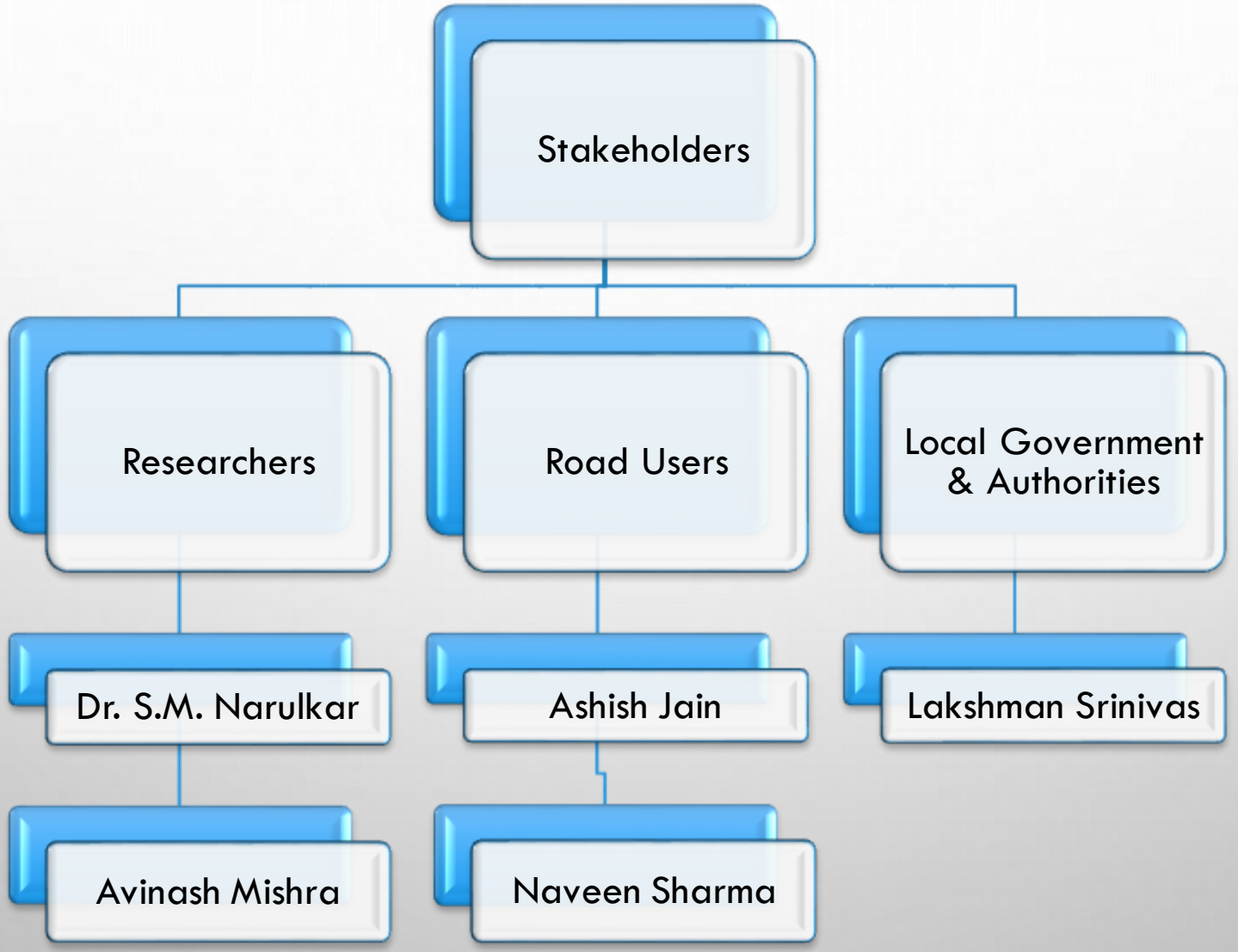
LIST OF STAKEHOLDERS



USER PERSONA OF RESEARCHERS

Dr. S. M. Narulkar
60, Male
Professor & Head
SGSITS Indore

About

He is HOD of civil engineering in SGSITS Indore.

Goals

- He wants to incorporate sustainable and environmental friendly materials and practices into the construction of road safety infrastructures, such as accident control systems at sharp turns.

Challenges

- Often encounters difficulties sourcing high-quality, sustainable materials at competitive prices.

USER PERSONA OF RESEARCHERS

Avinash Mishra
31, Male
Assistant Professor
SGSITS Indore

About

Currently he is an assistant professor in Civil Department, SGSITS, Indore.

Goals

- Wants to develop and implement smart transportation systems that enhance road safety and efficiency. His research focuses on technology to prevent traffic accidents, particularly in areas like sharp turns.

Challenges

- The primary challenge is the technical complexity of deploying smart systems in existing infrastructure, which involves overcoming significant engineering hurdles.

USER PERSONA OF ROAD USER

Ashish Jain
25, Male
Road Safety Engineer.

About

Ashish Jain is a Mold Design Engineer at ASB International PVT LTD, Mumbai.

Challenges

- His major challenge is whenever he met with blind turns, it feels risky and challenging.

Needs

- A proper system is required which will assure the safety of road users.

USER PERSONA OF ROAD USER

Naveen Sharma
40, Male

Indore

About

He is a frequent driver with an experience of 20 years.

Challenges

- Unable to predict the coming vehicle at blind and sharp turns.

Needs

- A proper system on the turns where I am able to know that a vehicle or something else is coming from front.

USER PERSONA OF LOCAL GOVERNMENT & AUTHORITIES

Lakshman Srinivas
54, Male
Govt. Officer
Municipal
Corporation, Dewas

About

He is a government officer working at Nagar Nigam, Dewas.

Goals

- Primary goal is to provide safety to the road users.
- Aim is to improve visibility around the blind turns so that drivers can see oncoming vehicles and obstacles more easily.

Challenges

- Maintenance of roads at sharp turns is very challenging.
- Blind turns are tricky because drivers can't see well around the curve. This makes accidents more likely.

Empathy Map

Empathy Map of Dr. S.M Narulkar

Says

- Considering human factors in the design, such as driver behavior, reaction times to develop systems that are effective and user-friendly.

Thinks

- Techniques used in foreign countries to prevent accidents can be implemented.

Does

- Designing and carrying out real-world studies, experiments, and computer simulations to collect actual evidence on why accidents happen and how we can stop them.

Feels

- Fines or penalties for individuals who violate the established rules.

Empathy Map of Avinash Mishra

Says

- Examination of historical accident data at sharp turns to identify patterns and common causes.

Does

- Analysis of existing road design standards and their effectiveness in preventing accidents at sharp turns.

Thinks

- Evaluate the risk associated with specific sharp turns, considering factors such as road conditions, visibility, traffic volume etc.

Feels

- Collaborating with engineers to implement these technologies into real-world applications.

Empathy Map of Ashish Jain

Says

- Limited visibility due to the curvature of road at the blind spot.
- Sharp edges in road's direction increases the risk of accidents.

Thinks

- There should be a proper system which will indicate that a vehicle is coming from the other side.

Does

- Always slows down the vehicle at these sharp turns.
- Blows horn and always keep an eye on the traffic.

Feels

- Always worry about the oncoming vehicles.
- Becomes more alert and it feels very risky.

Empathy Map of Naveen Sharma

Says

- Safety precautions should be taken to prevent any accident.
- Expressing the need for real-time victim data to enhance initial assistance efforts.

Thinks

- Proper warning signs with additional information about blind turns should be implemented.

Does

- Drives slowly on these type of turns.
- Proper usage of horns and headlight flasher.

Feels

- It's challenging to drive on these type of roads .
- On these blind turns , it is difficult to predict whether a light vehicle is approaching or a heavy vehicle.

Empathy Map of Lakshman Srinivas

Says

- Banking of road should be appropriate.
- Install markings on the sharp turns to alert drivers.

Thinks

- Safety of users should be our first priority.
- Support from the higher authorities is needed.

Does

- Full utilization of land that is provided.
- Add proper lighting at sharp turns, to improve visibility for drivers during nighttime.

Feels

- Change in the infrastructure of the road is very challenging and long process.

Overall Empathy Map

Says

- Always consider human factors such as driver's behavior, his reaction time, etc.
- Examination of historical accident data at sharp turns to identify patterns and common causes.

Thinks

- Techniques used in foreign countries to prevent accidents can be implemented.
- Evaluate the risk associated with specific sharp turns.

Researchers

Does

- Analysis of existing road design standards.
- Effectiveness of roads in preventing accidents at sharp turns.

Feels

- Collaborating with engineers to implement these technologies into real-world applications.
- Fines or penalties for individuals who violate the established rules.

Overall Empathy Map

Says

- Limited visibility due to the curvature of road at the blind spot.
- Expressing the need for real-time victim data to enhance initial assistance efforts.

Thinks

- There should be a proper system which will indicate that a vehicle is coming from the other side.
- Proper warning signs with additional information should be implemented.

Road Users

Does

- Always slows down the vehicle at these sharp turns.
- Proper usage of horns and headlight flasher.

Feels

- Always worry about the oncoming vehicles.
- On these blind turns , it is difficult to predict whether a light vehicle is approaching or a heavy vehicle.

Overall Empathy Map

Local Government & Authorities

Says

- Banking of road should be appropriate.
- Install markings on the sharp turns to alert drivers.

Thinks

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Does

- Full utilization of land that is provided.
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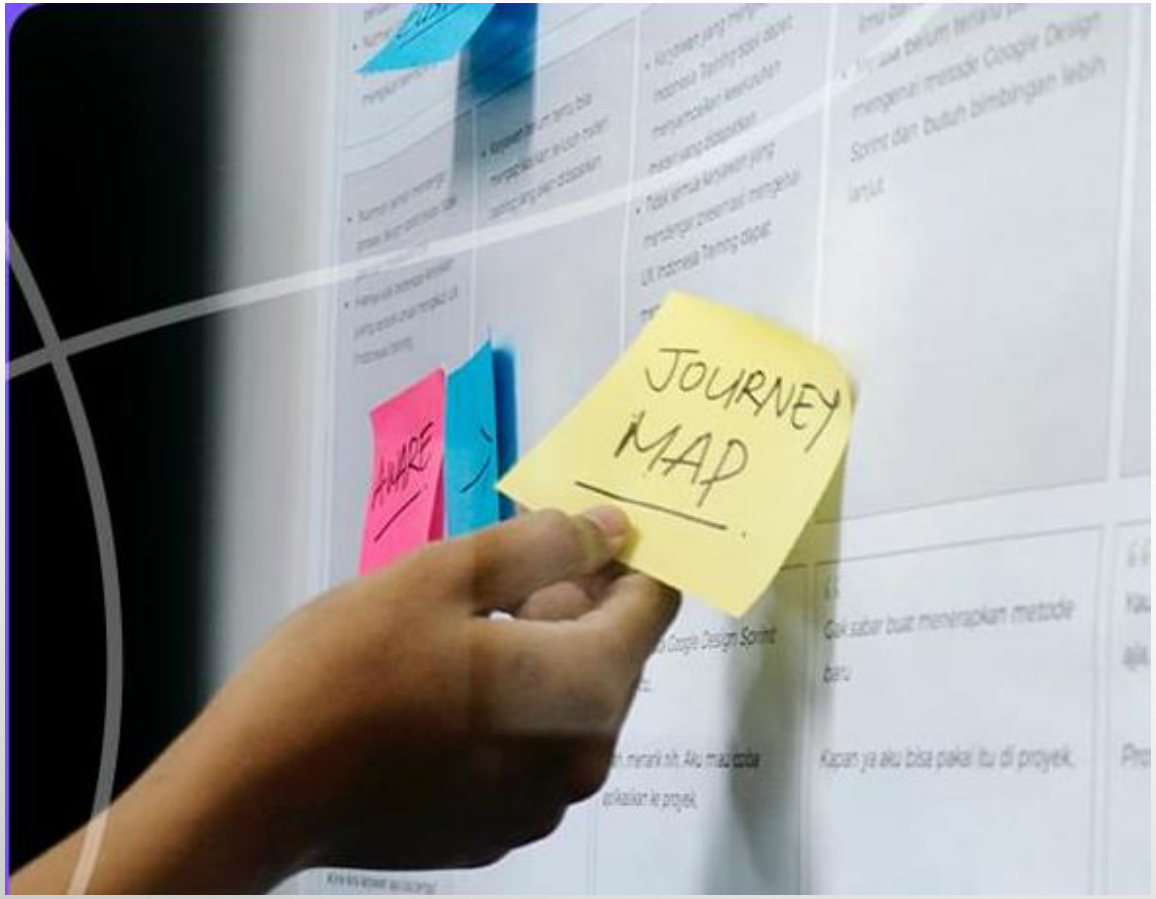


CUSTOMER JOURNEY MAP

JOURNEY MAP OF RESEARCHER

	Data Collection and Analysis	Gathering and Sharing Information	Feedback and Reflection Stage	Continuous Learning and Improvement
Touchpoint	Access to the data of previous accidents and gather the government database.	Getting the data through research journals, websites and networking.	Peer reviews, audience feedback, research evaluation, etc.	Continuing education programs, professional development opportunities and research collaboration.
Action	Researchers gather and analyze data on accidents, identify patterns and factors to inform prevention strategies.	Researchers share what they have found. This helps people learn from the research and use it to make decisions.	Responding to peer feedback, including suggestions for improvement, reflecting on research outcomes.	Participating in workshops, collaborating with other researchers on new projects, staying updated on the advancements.

JOURNEY MAP OF ROAD USER

	Response to Road Conditions	Departure	Preparation	Awareness	Experience During The Journey
Touchpoint	Reacting to changes in road conditions such as traffic congestion or incremented weather.	• Starting the journey from the origin point. • Entering the vehicle and adjusting settings.	• Planning the journey, including the route and estimating travel time. • Gathering items such as maps, GPS devices.	• Need to travel arises. • Access to information sources such as maps, GPS devices.	• Emotional response to the driving experience, frustrations, etc.
Action	• Slow down and maintain the distance in adverse weather conditions. • Stay alert for unexpected obstacles.	• Start the vehicle and adjust mirrors and seat position for comfort visibility. • Buckle seat belts and ensure the safety.	• Plan the route using navigation aids and road maps. • Ensure the vehicle is in proper working condition.	• Access travel requirements. • Determine preferred mode of transportation.	• Monitor personal comfort and well being during journey. • Provide feedback on road conditions, traffic, etc.

JOURNEY MAP OF GOVERNMENT

	Identification	Planning and implementation	Public Awareness Campaign
Touchpoint	• Data analytics tools, accident reports, road inspection team. • Concern about public safety.	• Engineering and infrastructure department. • Sense of responsibility.	• Public relation teams. • Concern for public education, community engagement.
Action	Analyzing data to identifying the sharp turns prone to accident.	Planning strategies for implementing accident control turns.	Launching campaigns to educate driver about danger of sharp turn and the presence of such system.

ANALYSIS

So from the previous data we have analyzed and figure out some of the following points :-

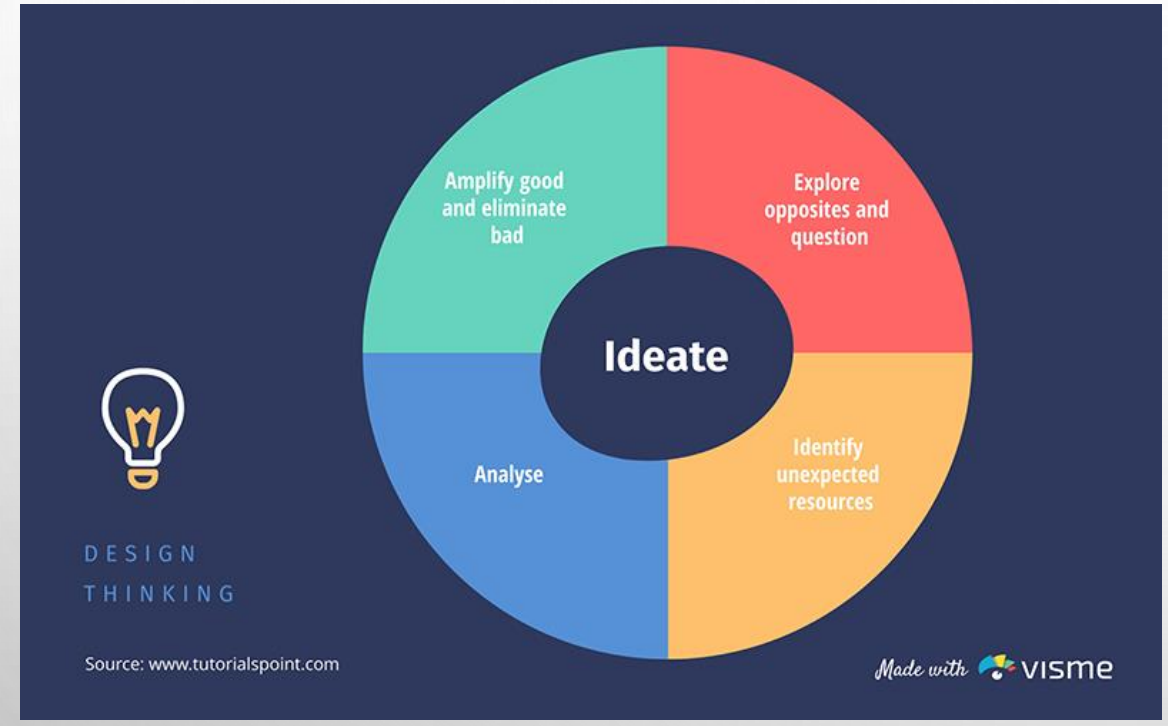
- The infrastructure should be well designed.
- There should be proper visibility around the blind turns.
- Safety of user is the primary concern.
- Difficult to make changes in the already existing road design
- Collaboration with the engineers is needed to implement latest technologies in affordable price.
- Projects should be cost efficient.

DEFINE PHASE

The second stage in the process is about clarity, focus and definition. In this phase, we analyze the data which we gathered during the previous stage to identify and define the issue with a clear and short problem statement.

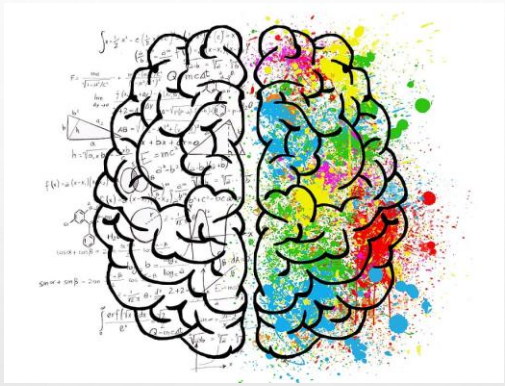
PROBLEM STATEMENT

How might we develop an accident prevention system that effectively anticipates and mitigates potential hazards that helps drivers and pedestrians stay safe at blind turns which reduces the occurrence of accidents and enhancing the road safety for all users ?



IDEATION STAGE

Brainstorming



Aakash

- Sensor-Based Accident Prevention System
- Thermal Imaging Cameras
- Automated Traffic Enforcement

Bhagyadeep

- Variable Speed Limits
- Driver Assistance Systems
- Dynamic Lane Marking

Abhinav

- AI-Powered Prediction
- Continuous Monitoring
- Smart Signage

Abhay

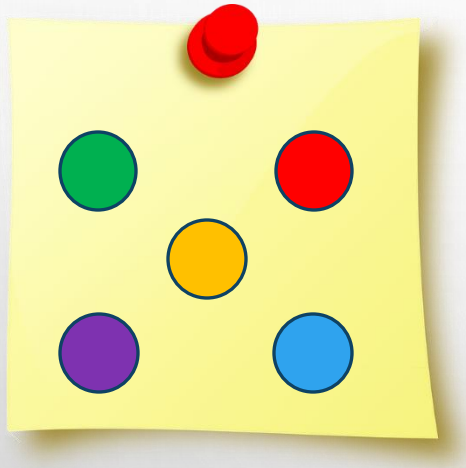
- 360-Degree Camera System
- Vehicle-to-Infrastructure Communication
- Educational Campaigns

Arin

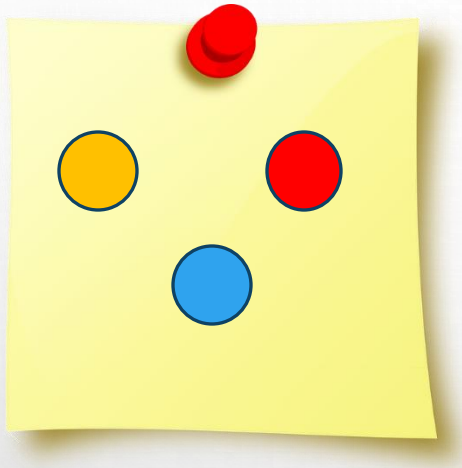
- Audible Warning System
- Wireless Communication
- Geofencing

DOT VOTING

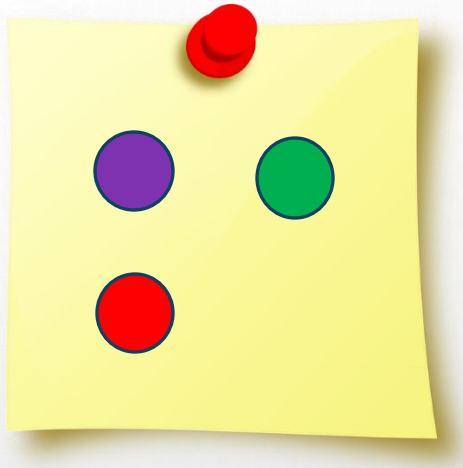
Sensor–Based Accident Prevention



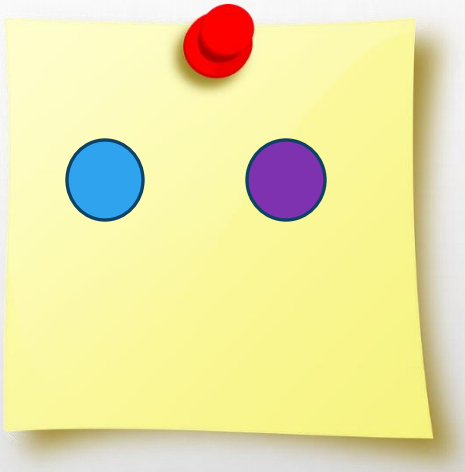
Audible Warning System



AI Powered Prediction



Other Ideas



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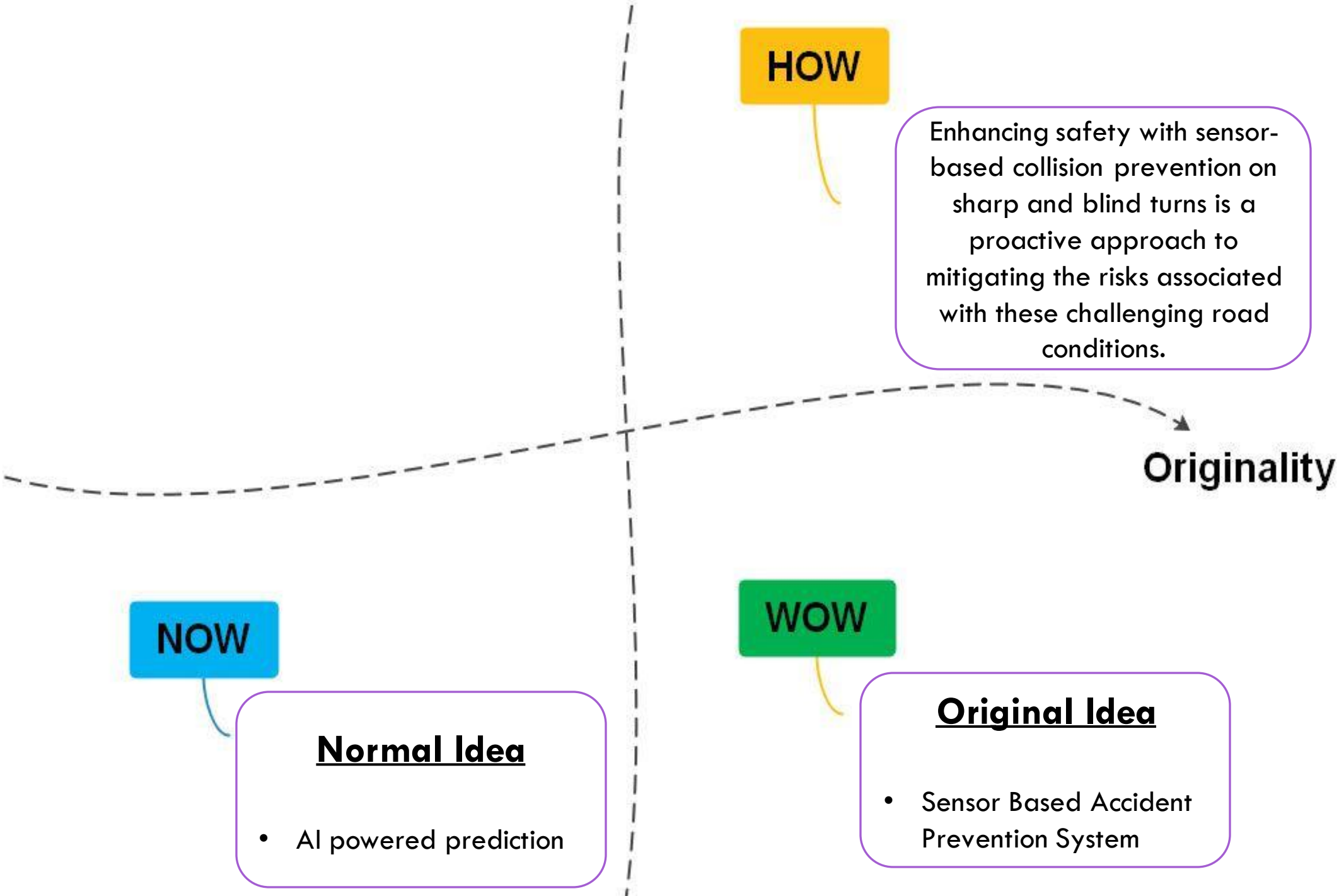
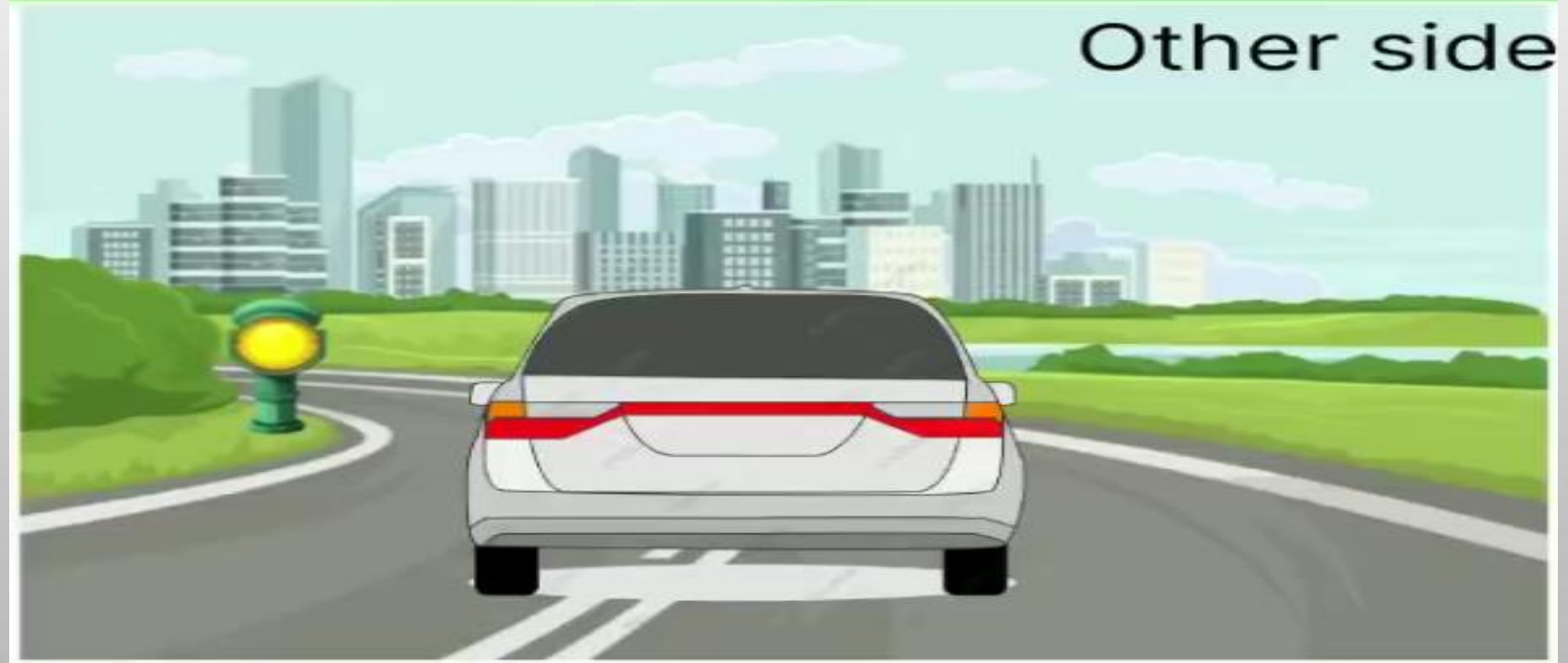

HOW
Enhancing safety with sensor-based collision prevention on sharp and blind turns is a proactive approach to mitigating the risks associated with these challenging road conditions.
Originality
NOW
Normal Idea
• AI powered prediction
WOW
Original Idea
• Sensor Based Accident Prevention System

PROTOTYPE

组织调度，充分发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