PM School Challenge


# Improving navigation on google maps and enhancing the driving experience

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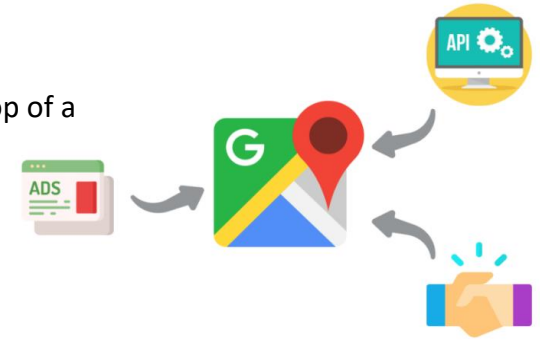
## About Maps

Google Maps, founded in 2005 is a web mapping platform and consumer application offered by Google.

Maps has over **1B+** active users and more than **200M** businesses listed as of 2023. With high-definition satellite imagery, Google maps covers over **36M** square miles of the Earth's surface.

Google Maps offers coverage in **250+** countries and territories globally, making it the most **extensive navigation solution.**

## Revenue Sources

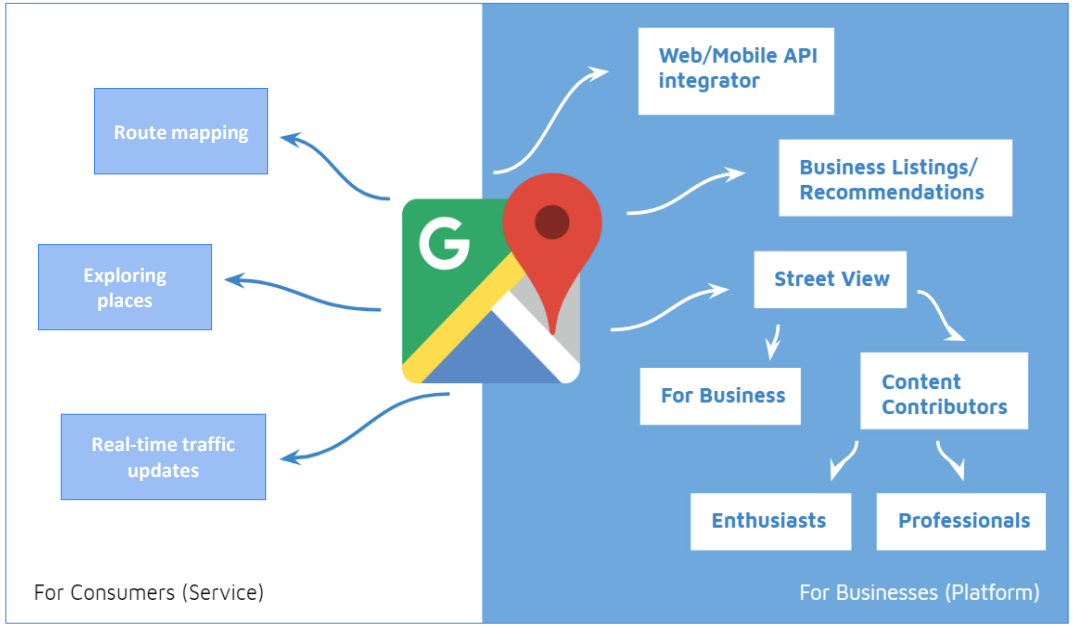



Ads at the top of a search list

Google Maps API for businesses

Exclusive partnerships with e.g. Uber, Lyft, integrating them into Maps

## Offerings



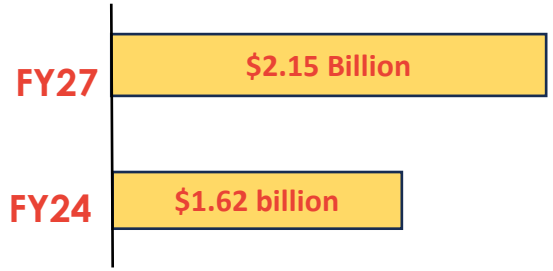

## Competitors

| | Google Maps | Apple Maps | MapmyIndia | Waze | Sygic Navigation |
|---|---|---|---|---|---|
| Active Users | 1 billion+ | 74 million | 10 million | 151 million | 200 million |
| Revenue | $11 billion | NA | 253 crore | $750M | $19.9M |
| Locations mapped | 30 million+ (India) | NA | 18 million+ (India) | NA | NA |
| Languages supported | 74 | 33 | 10+ | 50 | 30+ |
| USP | Easy navigation | 3D Flyover mode | Real-time user updates | Minimalistic interface | Real View Navigation |

## Market Growth

**Expected CAGR Worldwide (2024-2027)**

**10.35%**




The navigation market revenue is expected to show an annual growth rate (CAGR 2022-2027) of **10.35%**, resulting in a projected market volume of US$2.15bn by 2027.

## Average Revenue per Download

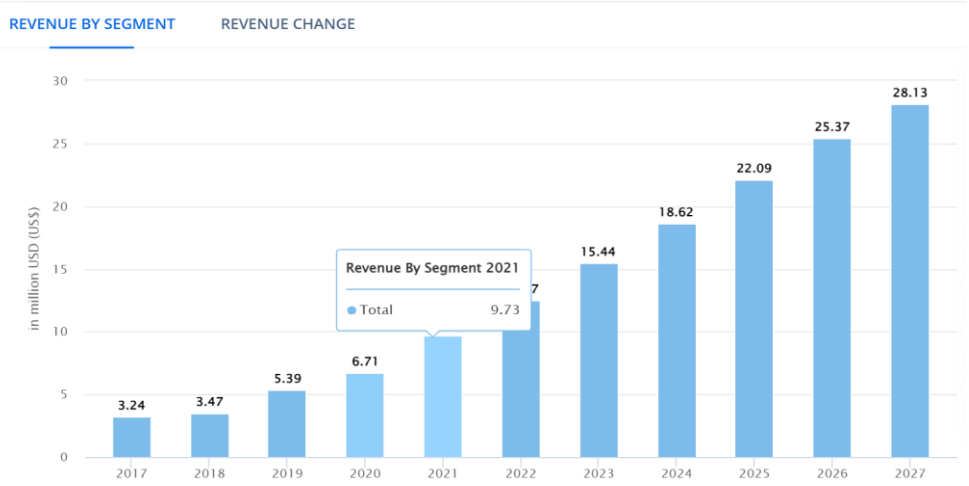
The global average revenue per download currently is expected to amount to US$1.83 by 2027


Most recent update: Mar 2024

Source: Statista Market Insights

## Revenue Growth in India

Indian navigation market is expected to perform better with an annual growth rate (CAGR 2022-2027) of **14.74%**, resulting in a projected market volume of US$28.13m by 2027




Notes: Data reflects market impacts of the Russia-Ukraine war.

Most recent update: Mar 2024

Source: Statista Market Insights

## Market Insights

- The demand for improved user-friendly applications and the enhancement of business operations has contributed to the growth of digital maps.
- Many companies and businesses, both large and small-sized, in e-commerce, food, etc., demand accurate navigation as they are competing to deliver products to customers on time
- As a result of the increasing demand for autonomous vehicles in the market, the need for accurate and efficient navigation maps continues to rise.

## User Personas




| User Persona | The Car Driver | The Explorer | The Night Driver | The Tech-Savvy Commuter |
|---|---|---|---|---|
| Name | Suresh | Raj | Manish | Aditi |
| Occupation | Product Manager | Freelancer | Freight Driver | Digital Marketer |
| Demographic | Age: 37, Location: Bangalore, India | Age: 28, Location: Delhi, India | Age: 50, Location: Haryana, India | Age: 25, Location: Hyderabad, India |
| Behaviours | Uses maps for work commutes, weekend trips with friends and family, Frequently checks for traffic updates | Drives long distances frequently for exploring new places, Prefers planned journeys, Uses maps to locate rest stops and gas stations, prefers to stop at clean and hygienic places. | Frequently drives at night, Prefers safe routes, Relies on navigation apps for real-time updates | Prefers using technology for convenience, Frequently uses voice assistants, Often changes routes based on traffic and conditions |
| Pain Points | • On approaching a flyover, it's not clear whether to take the flyover or the road below. Often this results in taking wrong directions and then having to re-route" | • Even though there is a way to plan stops ahead of long journeys, it takes a lot of time going through the lists of stops. There are conflicting reviews that makes it hard to decide”<br>• While travelling with family I need to lookout for hygienic places” | • Often, I might be driving through an accident-prone road without realizing the danger.<br>• At night, it's difficult to read signs and be warned about potential black spots. | • Lack of conversational intelligence means I have to engage with the app while driving or stop the vehicle to modify journey details. |
| Solutions | • Provide a clear view of complex junctions and flyovers, showing exactly which lane to take.<br>• Provide alerts on traffic signal heavy routes | • Use past search history and ratings to make personalized recommendations rather than just showing the items.<br>• Personal assistant to guide users on best items based on price, rating, distance, traffic throughout the day, hygiene, quality etc. | • A warning pop up notification/voice command to alert users of a potential accident-prone zone<br>• Alert when approaching narrow lanes, dark roads, roads with potholes, water clogged roads, etc. | • Intelligent assistant that helps with providing hands-free navigation, real-time updates, and personalized journey planning. |

## Feature 1

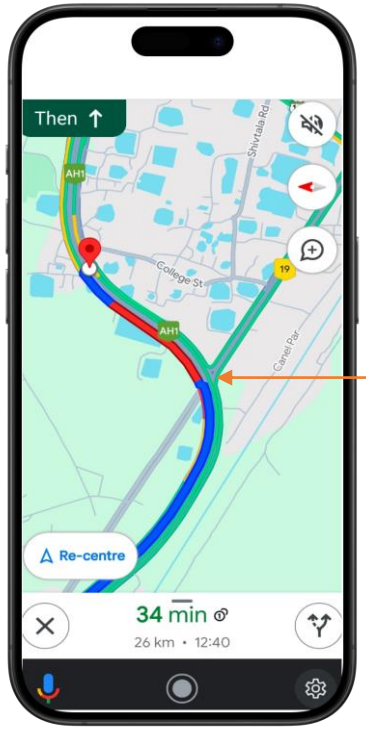
### Intersection view

**Description**

A detailed intersection view that provides a clear and enlarged 2D/3D model of complex junctions and flyovers, showing exactly which lane to take.

**How it works**

As a driver approaches a flyover, the screen shows a detailed view of the intersection, with a highlighted path indicating whether to take the flyover or the road below. This feature minimizes the need for the driver to constantly check small deviations on the screen.




Small deviations causing confusion on which lane to take

**Impact**

- This feature helps drivers make informed decisions quickly, reducing the risk of going on wrong directions and unnecessary fuel consumption. Over all, it ensures a smoother driving experience.
- For the business, it improves user satisfaction and trust, increasing app usage and adoption, leading to higher market share.

A 3D view of the diversion with proper direction on which road to take


On approaching any intersection, junction the map will automatically show which route to take along with voice instructions.

## Feature 2

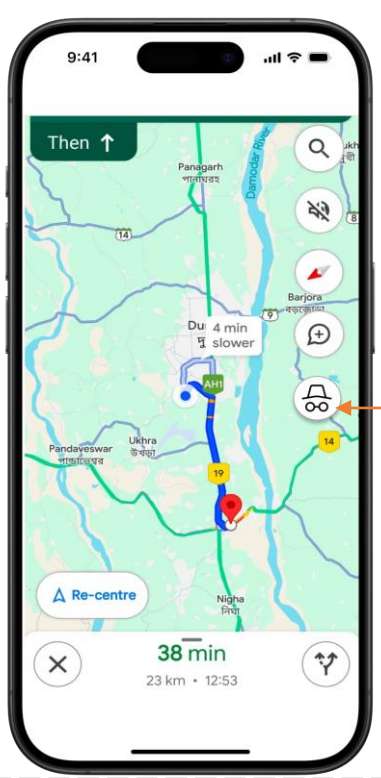
### Safe Mode

**Description**

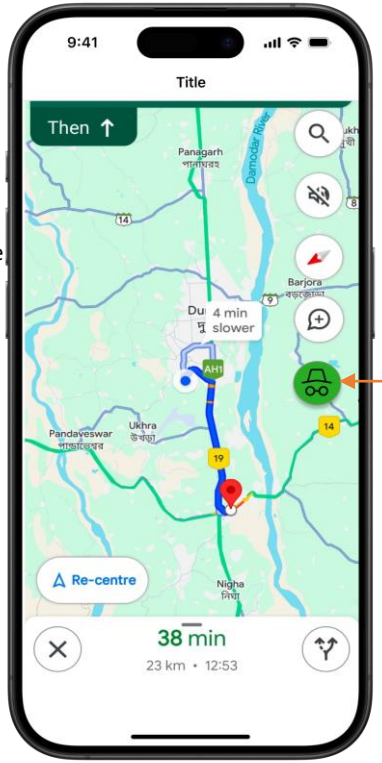
Integrate a system that identifies **accident-prone zones**, **bad roads**, **narrow lanes** (especially for car drivers) etc. using historical data and real-time reports. The app can provide visual and voice alerts when approaching these areas, especially at night.

**How it works**

As a driver approaches a high-risk area, the app issues a voice alert and displays a warning message, ensuring the driver is aware of potential dangers ahead.




A safe mode button will be present on the navigation screen



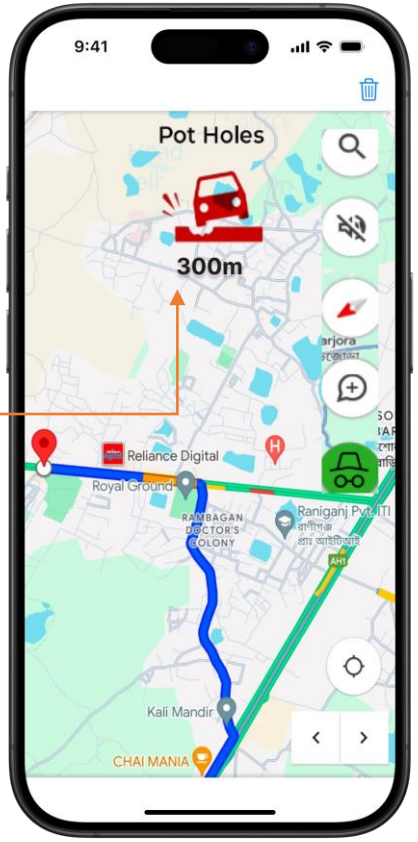

Users can tap on the icon to activate safe mode

**Impact**

- It will enhance road safety for users, reducing the likelihood of accidents. This feature can improve user trust and satisfaction by providing proactive alerts, thus fostering a safer driving experience.
- For the business, this can lead to higher user retention, increased app usage, and a competitive edge in the market, ultimately driving growth and profitability.


On approaching an accident-prone area users will be notified with a warning sign on the screen

On approaching a road with potholes or area users will be notified with a warning sign on the screen



## Feature 3

### Navigation Assistant - ‘Google Amigo’

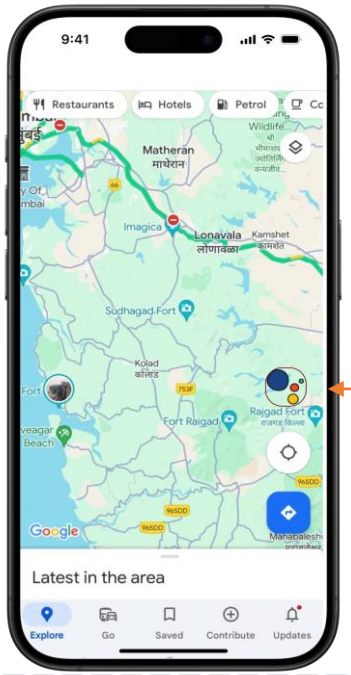
**Description**

Google Amigo will be an AI-powered voice cum text assistant that allows users to interact with Google Maps. The assistant can handle navigation requests, reroute options, and provide traffic updates through voice as well as text commands. The assistant can also be used for

1. Emergency Assistance
2. Weather alerts
3. Local events
4. Parking information
5. Accessibility information
6. Journey planning with stops etc.

**How it works**

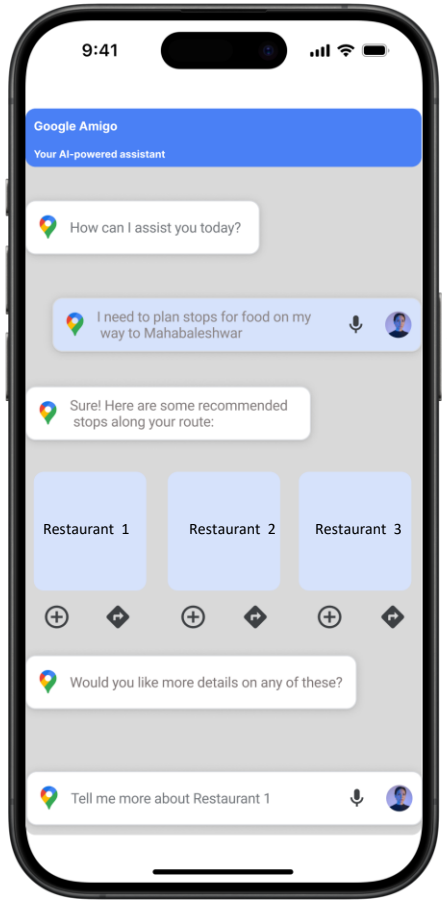
- A driver can say, “Hey Google, Call roadside assistance." The assistant locates the nearest help and provides contact details or connects the call directly.
- Users can generate customized itinerary with instructions on voice as well as text.




A assistant icon will be present on the landing screen. Users can tap on the icon to start chatting.

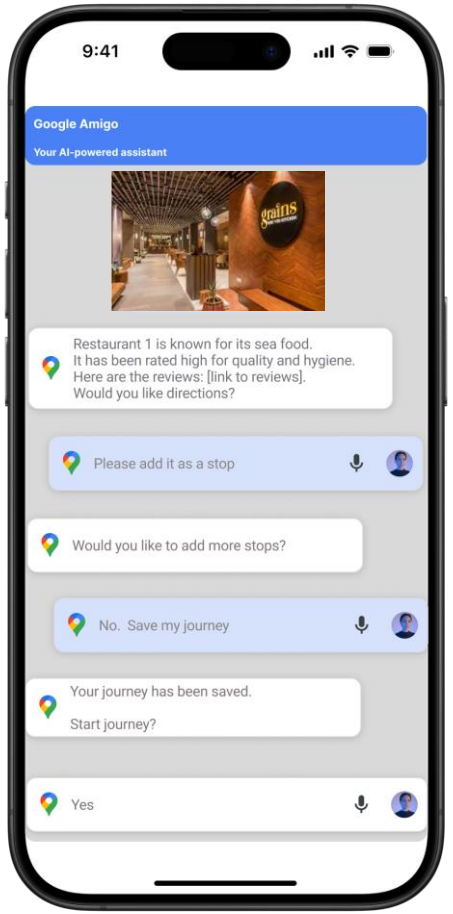
**Impact**

- By simplifying navigation and exploration, it can reduce user frustration and improve user experience by providing hands-free navigation, real-time updates, and personalized journey planning.
- Additionally, the feature can drive business growth through higher user retention, increased interaction with sponsored content, and potential monetization opportunities from bookings and reservations made through the assistant.




User can plan trips ahead of the journey with the assistant’s help

They can save the journey details and start the journey when they want




**Note**: This flow diagram depicts only one use-case of the AI-powered assistant. The user can leverage the assistant for more use cases as per their requirements.

**Prioritization of Features using R.I.C.E. Framework**

| Feature | Reach<br>*How many users will use this feature given period of time?* | Impact<br>*How much does these features affect users?* | Confidence<br>*How sure are we about the effect & score we achieve?* | Effort<br>*What resources and time will these strategies take to implement?* | Score | Priority |
|---|---|---|---|---|---|---|
| Intersection view | 8 | 8 | 8 | 7 | 73.3 | 2 |
| Safe Mode | 8 | 9 | 8 | 7 | 82.2 | 1 |
| Navigation assistant | 7 | 8 | 8 | 8 | 63 | 3 |

$$\text{RICE Score} = \frac{\text{Reach x Impact x Confidence}}{\text{Effort}}$$

Scale used for measuring:
1- Very low
10 – Very high

## Pre-launch phase

→ Conduct extensive user research to understand pain points and preferences regarding navigation, road safety, and interaction with maps.

→ Analyze competitor offerings to identify gaps and opportunities for differentiation.

→ Collaborate with traffic authorities, urban planners, and safety organizations for data accuracy and validation.

→ Research on AI and voice recognition technology providers to enhance the capabilities of the features

→ Engage a beta testing group comprising diverse user segments to gather feedback and refine features.

## Launch-phase

→ Design and develop the features on the basis of priority

→ Ensure robust testing for accuracy, reliability, and usability across various devices and regions.

→ Launch teaser campaigns across Google's ecosystem, including YouTube, Gmail, and Search, to generate buzz.

→ Announce the new features through a high-profile press release and blog post on the Google Maps blog.

→ Highlight the features' impact on user safety, satisfaction, and engagement in business discussions and marketing materials.

→ Implement in-app prompts and tips to guide users through the new functionalities.

## Post-launch phase

→ Actively collect user feedback through in-app surveys, reviews, and community forums.

→ Regularly update the features based on user feedback and evolving needs.

→ Monitor key performance metrics (usage, engagement, satisfaction) and make data-driven enhancements.

→ Share user success stories, testimonials, and case studies on Google's blog and social media.

→ Expand the coverage of the detailed intersection views and accident-prone zone alerts to more cities and regions.

→ Introduce the AI-powered assistant in additional languages and regions, tailored to local needs and preferences.

## Metrics: Intersection View

1. **Usage Frequency:** = $\frac{\text{Total Uses of Feature}}{\text{Total number of trips}} \times 100$
2. **Feature load time and responsiveness** = How quickly the intersection view loads and updates in real-time.
3. **Number of reported issues or inaccuracies in the intersection view.** = $\frac{\text{Reported issues for the intersection view}}{\text{Total reported issues}} \times 100$

## Metrics: Safe Mode

1. **Utilization rate** = $\frac{\text{Number of Users Who Used the Safe mode}}{\text{Total Number of Active Users}} \times 100$
2. **Alert accuracy** = $\frac{\text{Number of Accurate Alerts}}{\text{Total number of alerts issued}} \times 100$
3. **Feature load time and responsiveness** = How quickly the safe mode alerts load and update in real-time.

## Metrics: Navigation Assistant

1. **Utilization rate** = $\frac{\text{Number of Users Who Used the Assistant}}{\text{Total Number of Active Users}} \times 100$
2. **Average session duration** = $\frac{\text{Total Time Spent by Users on the Assistant}}{\text{Total Number of Sessions}} \times 100$
3. **Response accuracy** = $\frac{\text{Number of Correct Responses}}{\text{Total number of responses}} \times 100$
4. **Monthly retention rate** = $\frac{\text{Number of Returning Users in a Month}}{\text{Number of Users Who Used the Assistant}} \times 100$
5. **Click-through rate** = $\frac{\text{Number of Clicks on Recommendations}}{\text{Number of Recommendations displayed}} \times 100$
6. **Booking conversion rate** = $\frac{\text{Number of Bookings or Reservations Made}}{\text{Number of Recommendations displayed}} \times 100$

## References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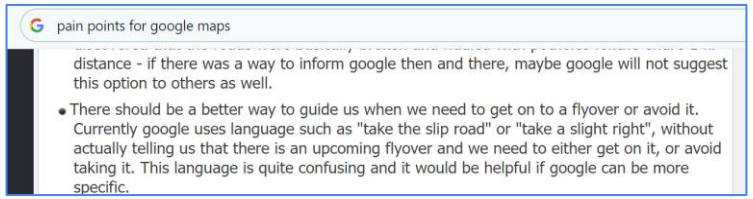
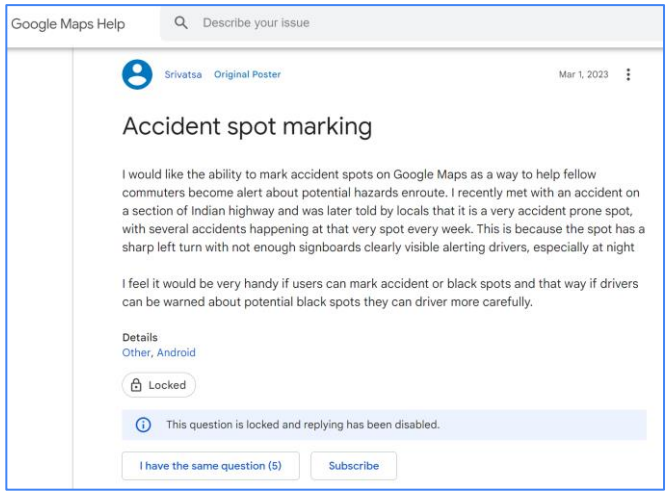
https://www.team-bhp.com/news/which-are-features-should-be-must-have-google-maps

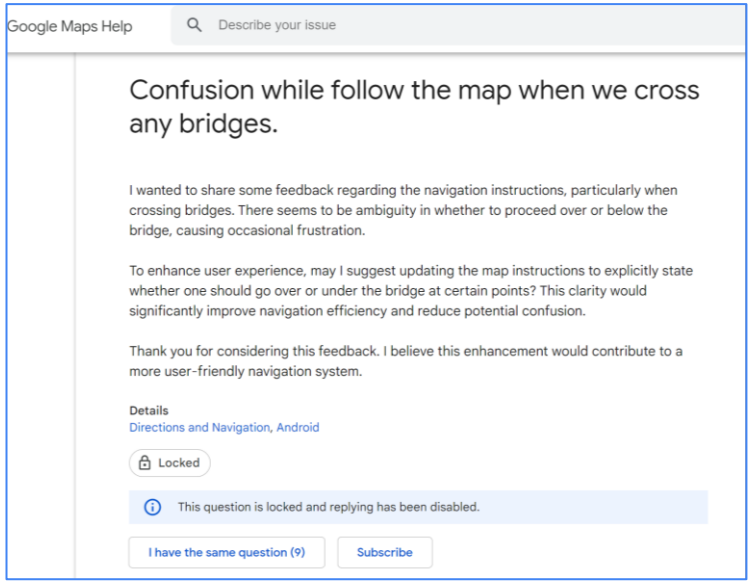

## User insights

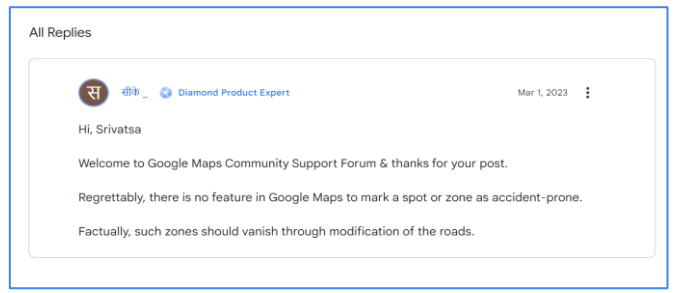
*2. There should also be an option where google warns is that the roads are narrow. This is an offshoot of the previous point - sometimes, the destination route requires us to travel through narrow lanes which are more suited to bikes rather than cars and it would be good for google to warn us in advance so that we can decide on an alternative in advance.*

Have been through this situation. We were on a team building trip by a Bus to one resort in pune. As usual we requested the best route on google maps and started following it. Only to realize that the road was going through narrow street at couple of locations where only single car can pass. It stuck upon us that google was suggesting the route which was for cars and we were travelling in a bus. Had to take a U-turn and closed the google maps for further directions. Took the normal highway and reached destination.




travelling from Bangalore to Sringeri, Google suggested a short route from Belur to Jayapura - only halfway we discovered that the roads were basically broken and riddled with potholes for the entire 1 hr distance - if there was a way to inform Google then and there, maybe Google will not suggest this option to others as well.

Google Maps

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# THANK YOU

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