Uber Mock Product Review — Improving Routing Reliability Using Crowd-Sourced Signals

Case Study · Solo PM / Builder · Consumer Coordination Problem

The Problem

Routing systems optimize for historical data, not real-time disruptions.

Drivers frequently encounter unexpected road closures (construction, events, accidents)

Map data often updates slower than real-world conditions

Drivers manually reroute, increasing trip time and frustration

Why This Matters

Routing reliability is a trust problem, not just a mapping problem.

Impact on Drivers

- Lost time to lost earnings
- Increased stress during trips
- Reduced trust in navigation guidance

Impact on Uber

- Inaccurate ETAs
- Poor rider experience
- Higher support volume
- Potential driver churn

Current System & Constraints

Any solution must work within these constraints.

How Routing Works Today

- Relies on third-party map providers
- Uses historical traffic and pattern-based signals

Key Constraints

- Routing decisions must be fast
- Signals must be reliable at scale
- False reports and abuse are real risks

Core Insight

Drivers See the Ground Truth First

- Drivers encounter closures before maps update
- Individual reports are noisy
- Aggregated signals can become reliable

Weak local signals can become strong when aggregated with confidence weighting

Value Hypothesis

If Uber aggregates real-time driver-reported road issues with trust weighting, routing reliability will improve before map providers update.

Expected Outcomes

- Faster rerouting
- More accurate ETAs
- Increased driver trust

Solution Concept

Goal: Improve routing decisions, not replace maps.

Concept

- Lightweight driver signal: “Road blocked / inaccessible”
- Signals aggregated across multiple drivers
- Confidence threshold before affecting routing
- Temporary suppression with time-based decay

Explicitly Not Included

- No permanent map edits
- No heavy UI workflows
- No manual verification steps

Risks & Mitigations

Key Risks

- False or malicious reports
- Overreaction to single signals
- Increased routing complexity

Mitigations

- Driver reputation weighting
- Multiple confirmations required
- Time-limited signal validity
- Passive signal collection (no incentives to spam)

Metrics & Validation

Metrics & Validation

- Primary Metrics
- Driver time saved per trip
- Reroute accuracy
- ETA variance reduction

Guardrail Metrics

- False-positive rate
- Driver trust indicators
- Routing-related support tickets
- Success = more reliable decisions, not more reports.

Tradeoffs & Open Questions

Tradeoffs

- Speed vs accuracy
- Coverage vs confidence
- Automation vs safety

Open Questions

- Which cities should pilot first?
- Driver-only or rider-visible impact?
- Interaction with third-party map providers?

Links & Artifacts

👤 Portfolio Website
https://www.arjunportfolio.xyz