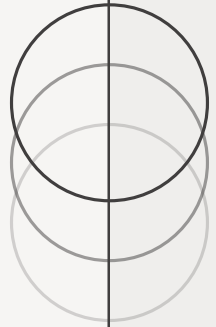




• APTIV •

SMART ACCESSIBILITY CERTIFICATION SYSTEM

CONCEPT & FEASIBILITY DECK



Dynamic Accessibility Scoring Engine

Aptiv is all about safer, greener, connected mobility – with tech like advanced driver-assistance, smart vehicle architecture, and edge-to-cloud platforms.

SMART ACCESSIBILITY CERTIFICATION SYSTEM can

A layer on top of their existing mobility + data infrastructure to measure and certify how accessible transport and urban locations are.



LIVE DATA STREAMS

Sensor events, vehicle telemetry, and infrastructure status feed directly into the system



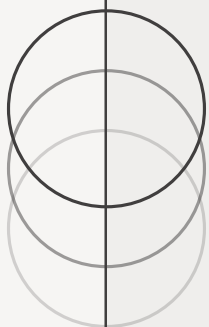
USER FEEDBACK

Community ratings, detailed issue reports, and photo documentation provide ground truth



AUTOMATED AUDITS

Scheduled compliance checks and digital checklists ensure consistent evaluation



Innovation & Technical Approach

REAL-TIME OPERATIONAL COMMAND CENTER

IOT & SENSORS

Smart cameras (edge-processed)
to detect physical obstructions

AI / MACHINE LEARNING

Detect potential accessibility
issues from images (e.g., blocked
paths)

DATA INTEGRATION (APIS)

V2X or vehicle-mounted sensors
for curb/stop accessibility checks

CLOUD BACKEND

Real-time score computation &
Audit scheduling engine

MOBILE INTERFACE

User app for
reporting/accessibility navigation

WEB INTERFACE

Auditor panel for digital compliance
checks

Feasibility & Implementation Plan

Ingests information from IoT sensors, external APIs, user submissions, and audit systems. This foundation ensures comprehensive data collection from every accessibility touchpoint.

Data Layer

Scoring & Intelligence Layer

Processes data through weighted scoring models, verifies reported issues, and triggers notifications. The intelligence engine applies business rules to maintain scoring integrity.

Experience Layer

Delivers tailored interfaces: mobile apps for users to access scores and report issues, web dashboards for operators to monitor and manage, and auditor portals for certification workflows.

A Robust 3-Layer Platform Design

Scoring Model

How the Accessibility Score Is Computed

GOLD CERTIFICATION

90+ Exemplary accessibility across all dimensions

SILVER CERTIFICATION

75+ Strong accessibility with minor improvement areas

BRONZE CERTIFICATION

60+ Meets basic standards with room for enhancement

BASE SCORE

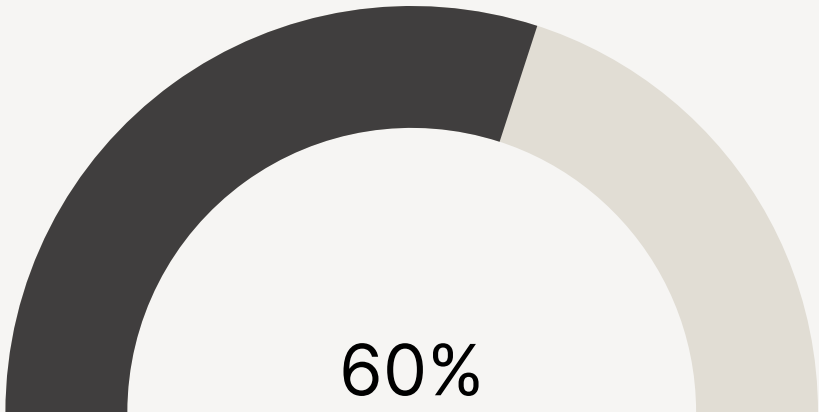
Structural accessibility checklist and legal compliance requirements

OPERATIONAL SCORE

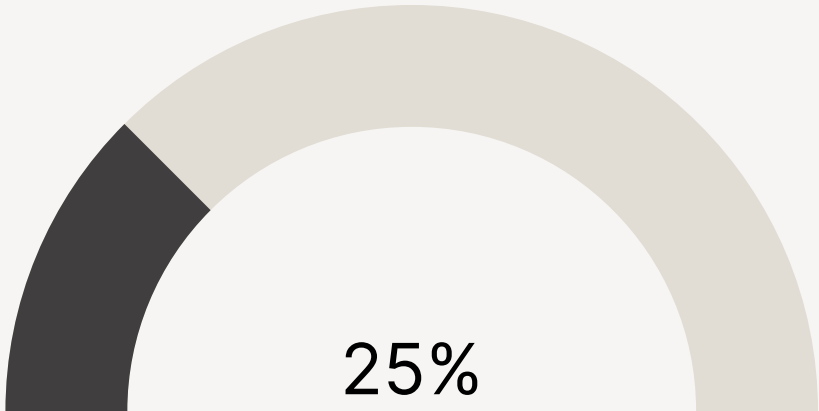
Elevator uptime, ramp deployment success, and live condition signals

USER FEEDBACK

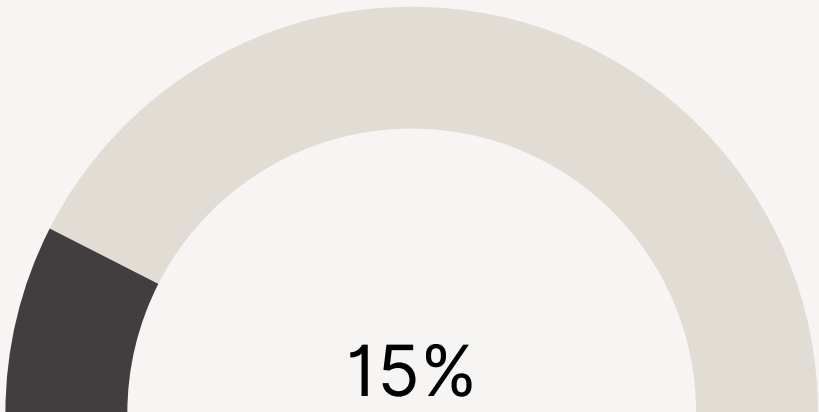
Average ratings, verified complaints, and issue resolution speed



BASE SCORE



OPERATIONAL SCORE



USER FEEDBACK

Accessibility & User-Centered Design

Mobile App for user

Our mobile app puts accessibility information directly in users' hands, enabling informed decisions and fostering an engaged community of advocates.

VIEW ACCESSIBILITY SCORES

Check ratings for places and routes before you travel

FILTER OPTIONS

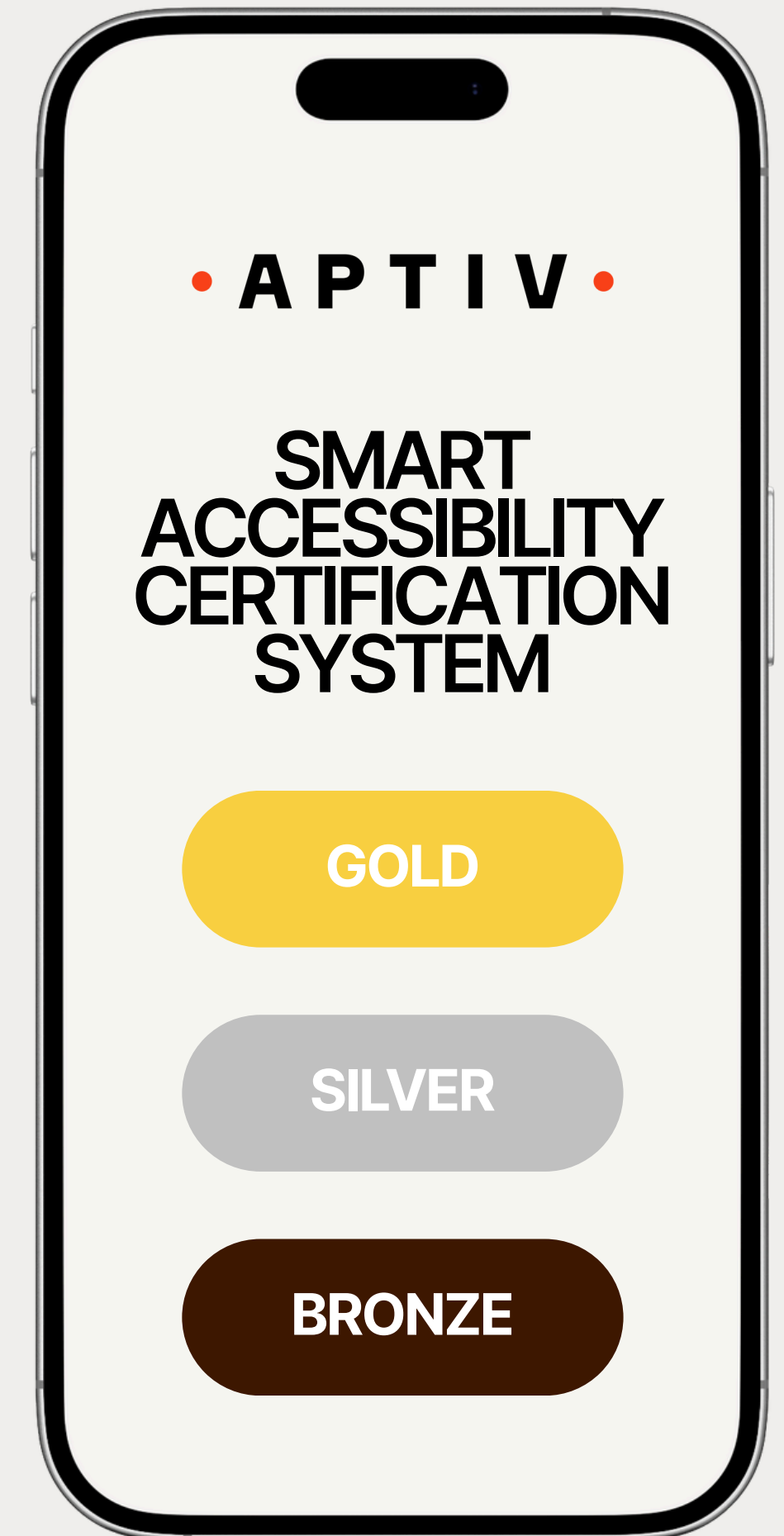
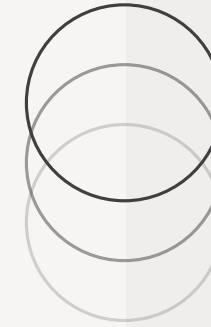
Find wheelchair-friendly venues and barrier-free routes

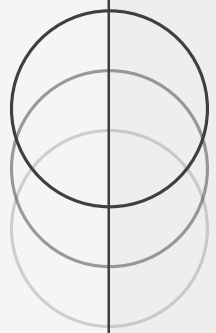
REPORT ISSUES

Submit problems instantly with photo and video evidence

TRACK RESOLUTION

Monitor whether your reports drive real improvements





Impact & Scalability

Why This System Matters

By combining cutting-edge technology with human-centered design, we're building a future where accessibility isn't an afterthought—it's a fundamental feature of how we move through the world.

FUTURE-READY

Seamlessly integrates into smart mobility and smart city ecosystems as they evolve

INCLUSIVITY

People with disabilities gain independence and equal access to transportation and public spaces

TRANSPARENCY

Users gain confidence knowing accessibility status before they arrive, reducing anxiety and enabling better planning

SCALABILITY

The platform adapts to cities, campuses, shopping centers, and entire transportation fleets

ACCOUNTABILITY

Operators receive clear, actionable insights about what needs fixing and can track improvement over time

APTIV + ACCESSIBILITY = EMPOWERED, INCLUSIVE MOBILITY

Call to Action

Stakeholder Engagement

GOVERNMENT PARTNERSHIPS

to integrate city infrastructure data and support large-scale deployment

FUNDING & SUPPORT

to scale pilots, deploy sensors, and expand predictive analytics capabilities.

CERTIFY & PUBLISH

Approve certification, update accessibility scores, and publish verified badges

COMMUNITY ENGAGEMENT

to strengthen feedback loops and ensure continuous improvement of accessibility outcomes.

INDUSTRY COLLABORATION

with transport operators, building owners, and tech partners for IoT + AI integration.

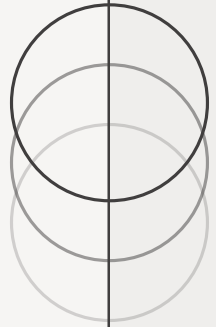
1

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Risk Management & Data Privacy

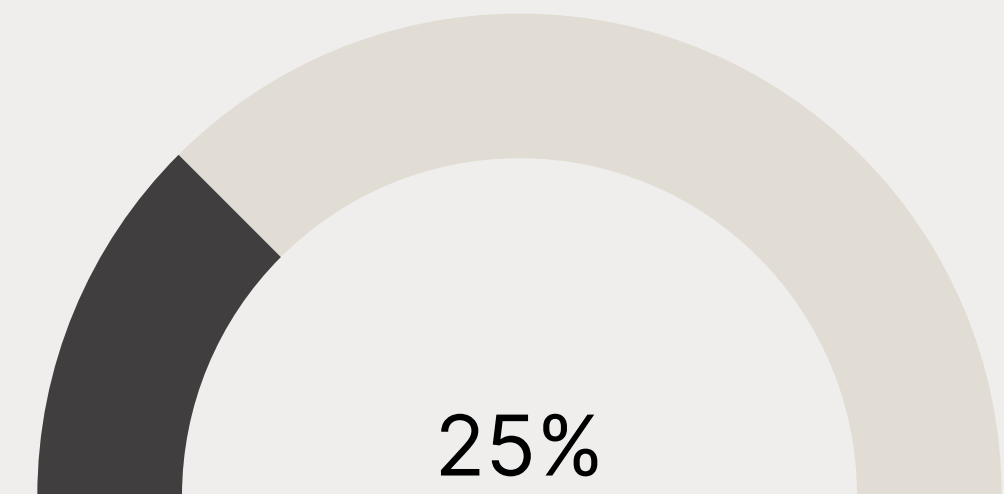
SECURITY & PRIVACY SAFEGUARDS

- **Secure Architecture:** HTTPS everywhere, encrypted databases, and hashed passwords.
- **Access Control:** Role-based permissions and JWT authentication to protect sensitive audit + issue data.
- **Privacy-by-Design:** Minimal data collection, consent-based uploads, and GDPR-aligned data rights.
- **Integrity & Transparency:** Immutable logs, tamper detection, and complete audit trails for every score change.

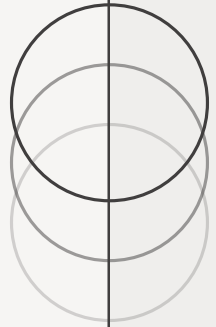
RISK

A unified system that handles:

- Data Reliability & Sensor Failure
- Fake or Malicious User Reports
- Privacy & Security Risks
- System Downtime & Scalability Issues



OPERATIONAL SCORE & RISK



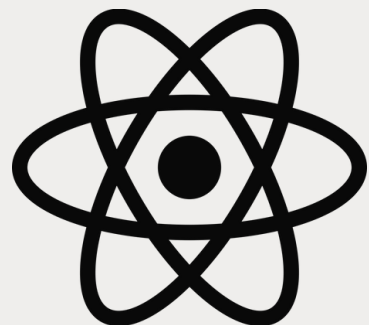
Prototype

INITIAL STAGE OF DESIGN AND DASHBOARD
FOR CERTIFICATION SYSTEM



GITHUB

<https://github.com/akhilthirunalveli/Aptiv-Certification-System>



PROTOTYPE SITE

<https://aptivcertificationsystem.vercel.app>



BACKEND

<https://aptiv-certification-system.onrender.com>