KeepVSafe

"Solutions to the problems of tomorrow; delivered today."

Advisor: Daji Qiao

Client: Andrew Guillemette

Introductions

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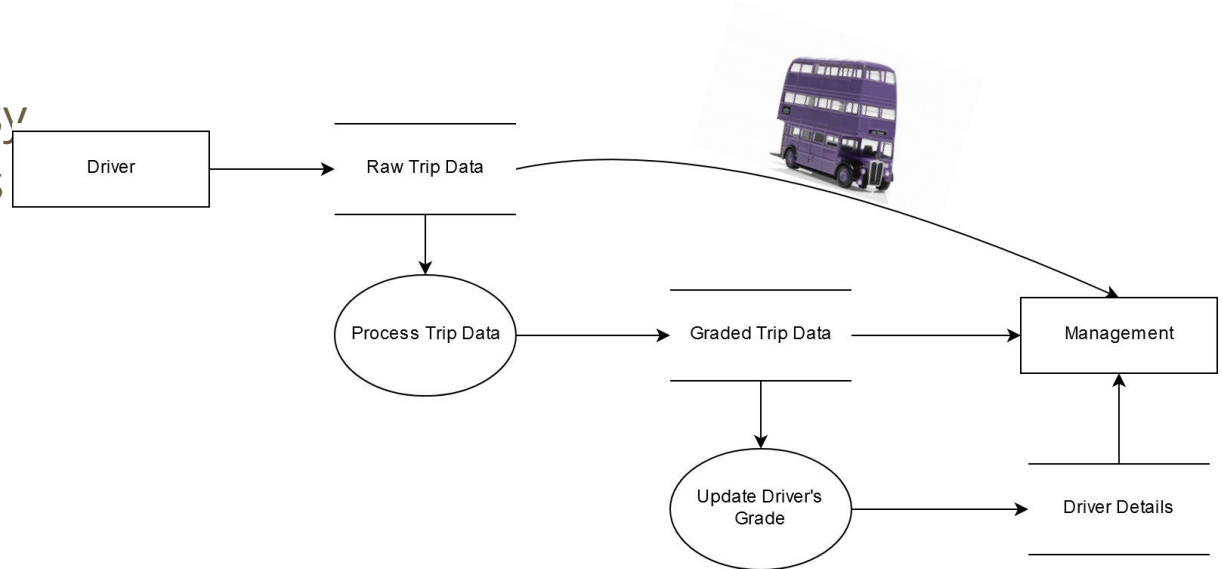skandgpt@iastate.edu
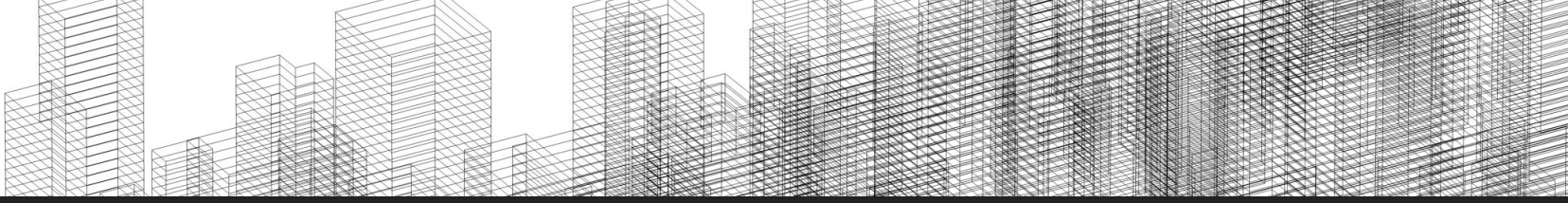
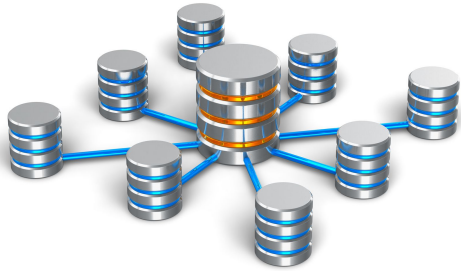# Boarding; Watch Your Step!

The Problem

Introducing: KeepVSafe

"KeepVSafe should provide a simple and easy portal for fleet managers to monitor the performance of their drivers and address potential risks **before** they become real-world problems."

Scope

Storage

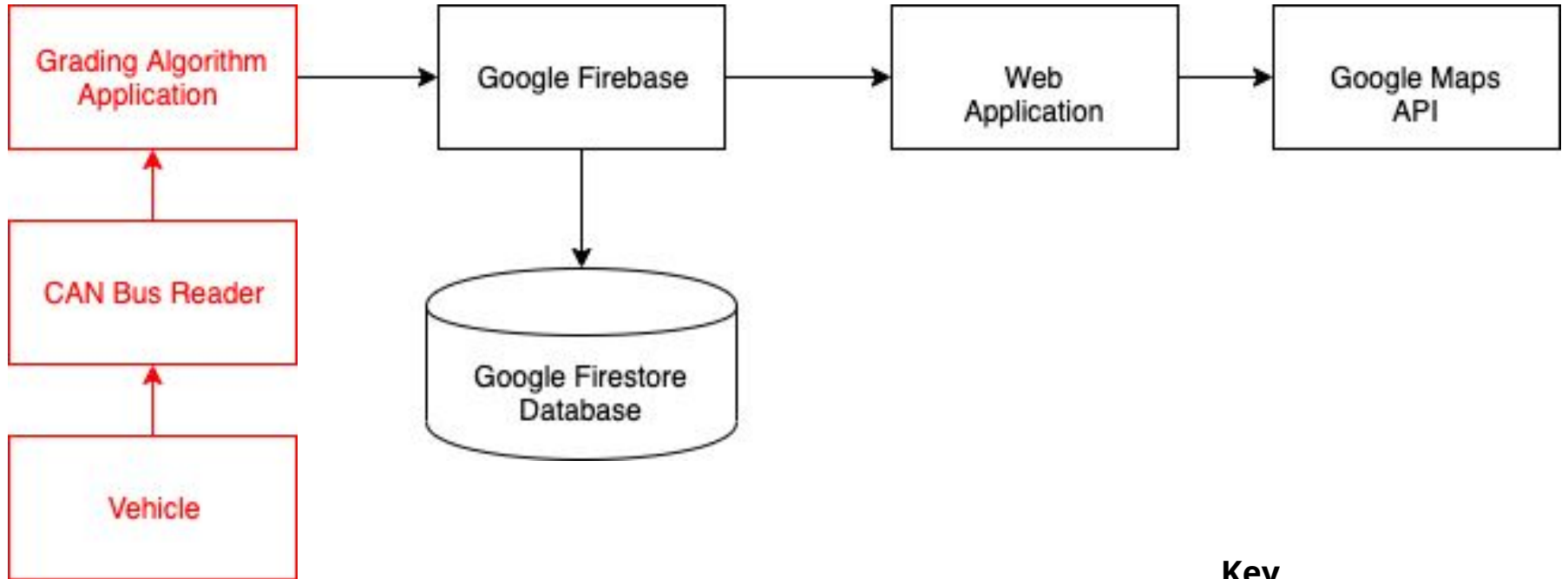Visualization

Interpretation

Major Requirements

- Prototype a proof of concept design
- Fetch raw & processed data quickly
- Work with multiple drivers
- Notify fleet managers when a poor score is received
- Easily understand driving reports

Constraints & Considerations

- Intuitive UI for Users
- Data and grading falls to the graduate students
- Connecting database to web app
- Flexibility and scalability
- Minimal development costs

Transfer Point!

Detailed Design

Grading Algorithm Application → Google Firebase → Web Application → Google Maps API

CAN Bus Reader → Grading Algorithm Application

Vehicle → CAN Bus Reader

Google Firebase → Google Firestore Database

Key
Graduate Students
Ours

Why these?

Firebase

Cloud Firestore

Google Maps API

ANGULAR

Demo

Roadblocks

1. Grading project lacked sufficient documentation
2. Project was hard coded for one route
3. Graduate students' deliverables were late
4. Learning curve of new technologies
5. Storing data efficiently and effectively
6. Overestimated time availability

Future of Project

- Compare data between laps
- Highlight segment details
- Integrate adding new routes
- Authentication for users
- Integrate grading algorithm into an API

This is your stop!

Takeaways

- Solution to monitor risky driving behaviors
- Catch complacent driving habits
- Prototype
- Development Cost: **$0**

KeepVSafe

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Any questions?

Appendix

Two Teams

Graduate Students

Archit Shashidhar Joshi, Ashraf Shaikh Mohammed, & Shankar Sridhar

- Collect data from fleet.
- Algorithmically analyze data for performance & risks.
- Handle hardware & firmware.

Our Team

- Data Visualization.
- Control and view performance reports.
- Alerts for bad reports.
- Accessing and using data.

Market Survey

Behavioral Profiling

Enterprise Scale

KeepVSafe

Standardization

- Some unit testing
- IntelliSense
- Lint
- Angular design guidelines
- Firestore data standards