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Technological Study in Farm Milk Collection (FMC)

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ABOUT FONTERRA

Fonterra is a global dairy company, operating multiple manufacturing sites and farms around the world to provide great-tasting dairy brands including but not limited to Perfect Italiano, Western Star and Mainland.

PROJECT BACKGROUND

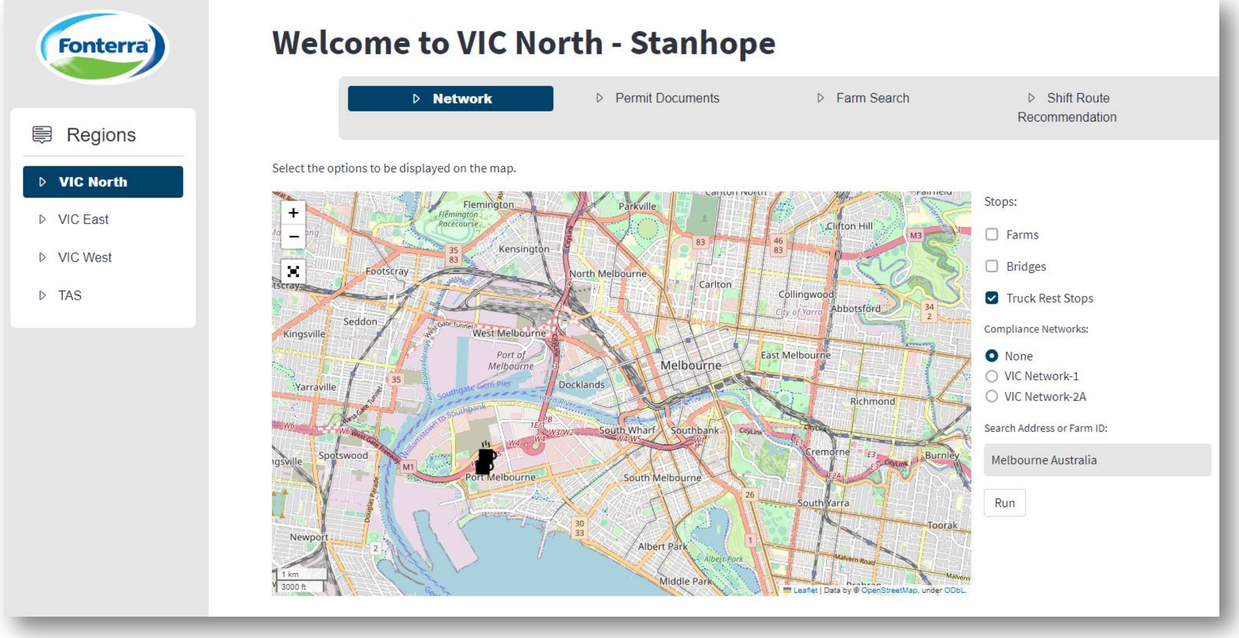
The FMC team is responsible for collecting milk from farms in a timely and compliant manner. To gain a better understanding of its operations, we visited the Stanhope site, where we travelled alongside drivers and explored how the collection process works. During our experience, we learned that Fonterra's Australian truck fleet travel over 3 million km per year and is composed of varying configurations, permit accesses and capacity constraints.

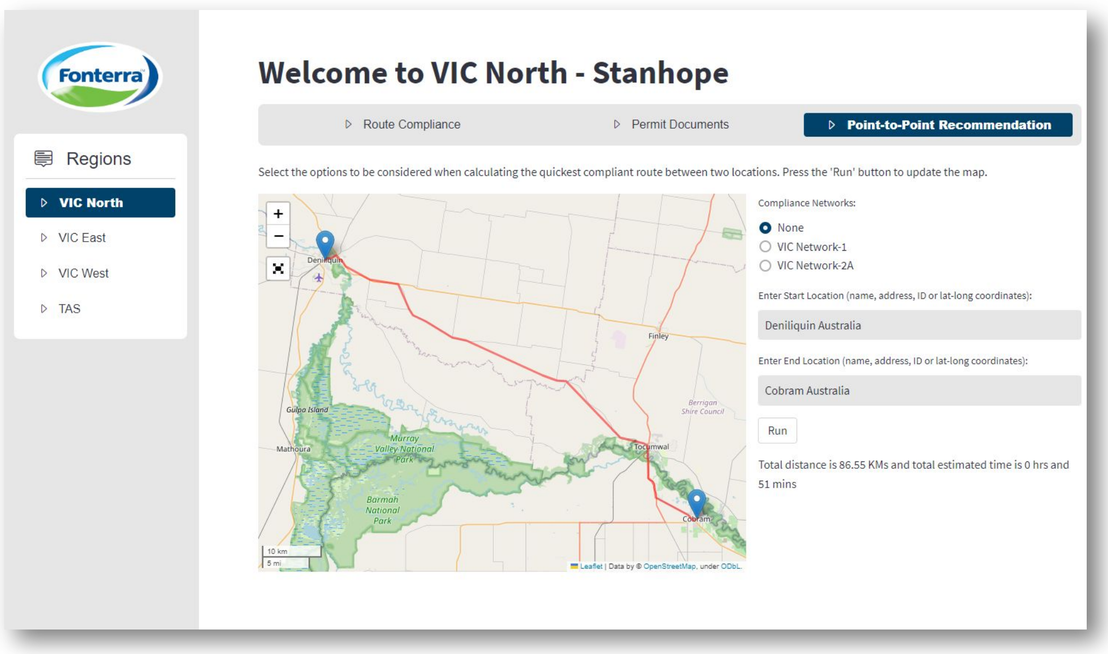
PROBLEM STATEMENT

1. Despite the vast amount of data, there is no centralised system for regional managers to easily view and manage information for more than 150,000 kms of roads, changing farms, truck fleet mix, permit details and drivers' route history.
2. There is also no system in place for drivers to navigate from one point to another whilst remaining compliant with state road conditions.

PRODUCT DEVELOPMENT

We used Open Street Maps (OSM), Python, Streamlit, Azure SQL, and Kafka to create dashboards for: (1) regional managers to compile road networks and drivers' route history to check for route compliance, and (2) drivers to recommend the quickest compliant routes to complete their collection runs





BENEFITS AND FUTURE SCOPE

- Physical books will be replaced with a dynamic online map accessible on a laptop and tablet/iPad.
- Manual diagnosis of route compliance is replaced with an automated system, allowing for more detailed reports and eliminating human-error
- Drivers on compliant roads reduce fuel consumption and increase collection efficiency.
- In future, the dashboards can integrate live road and GPS data with voice-guided & turn-by-turn navigation features.

LEARNING OUTCOMES

- Explored the problem and planned our project scope
- Gained industry knowledge of the Dairy sector in Victoria
- Learnt key programming skills in Python, SQL, OSM, and Kafka
- Presented the problem identification and solution to leaders

*Joined between 05/12/22 – 13/01/23

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