Team: Ventus

Members: James Andrew Pohadi, Ho Jin Kind, Tee Zhi Yao

TRACKING INVENTORY USAGE

SINGAPORE AIRLINES AppChallenge

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Problem Statement

Current situation

SIA's operations worldwide, all SIA stations, including Singapore maintains an inventory of service ware. Inventory is purchased through the main supplier and distributed from Singapore hub to stations. All stations keep inventory in their respective warehouses until it is released for operational use. Inventory Although tracking of inventory is available in the stations and those released for operational use, consumption of inventory on flight is unpredictable, making accounting a hassle as these numbers may vary anywhere along the washing/holding area, packing area in preparation for a flight, or on a flight. The lack of tracking at these respective phases undermines optimized inventory forecast leading to situations of under or overstock in some stations resulting in urgent replenishment procedures being activated to meet operational demands.

Value Proposition and Differentiation

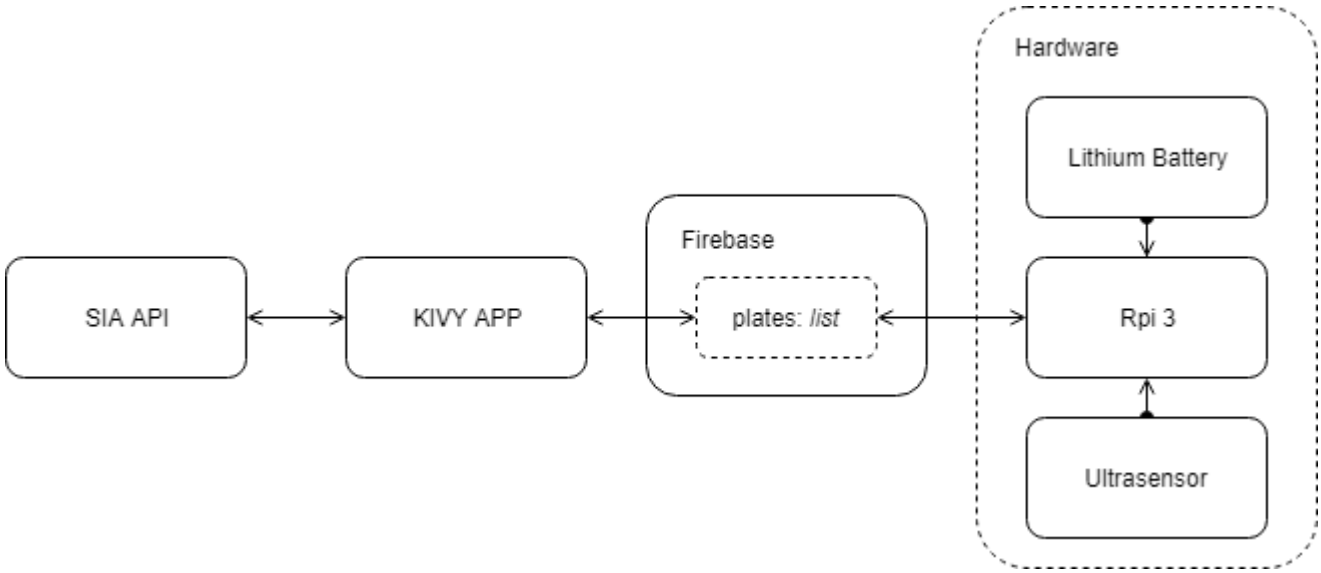
Hence, with the limitations involved, our group have decided to come up with a tracking system, complete with a modular device for measurement, to account for inventory such as clean plates available after flight for more efficient refill of the balance required for each flight. By using Google Backend-as-a-Service FireBase, we can efficiently communicate with the station instantaneously at the end of each flight. The small size of the dive also makes it easy for removal and applied to different carts, thus reusable.

Core Technology

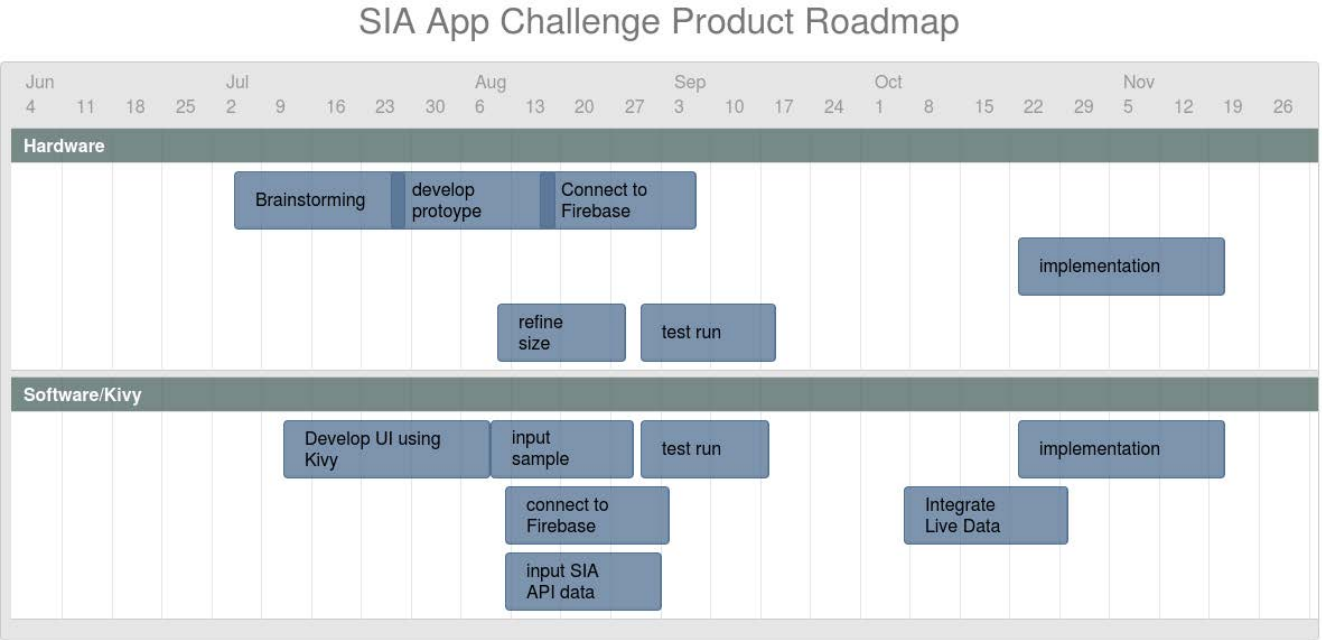
Using a Raspberry Pi3, along with a Lithium ion battery and ultrasensor, we are able to create a small but effective device that meets the need. The device is able to update the current quantity on to Firebase, and our application is able to calculate the balance required to top up to the plane.

ARCHITECTURE

Hence, with the limitations involved, our group have decided to come up with a tracking system, complete with a modular device for measurement, to account for inventory such as clean plates available after flight for more efficient refill of the balance required for each flight. By using Google Backend-as-a-Service FireBase, we can efficiently communicate with the station instantaneously at the end of each flight. The small size of the dive also makes it easy for removal and applied to different carts, thus reusable.



Roadmap



With the current roadmap on our product, we have complete the milestones of a working protype both on the software and hardware side. Our next milestone is integrating with live data from SIA API, and begin implementation a trail run on operation.

About the team

HO JIN KIND

Experience: A sophomore in SUTD studying Information System Technology and Design (ISTD). Jin Kind spent his summer on an overseas exchange IN Stevens Institute of Technology on data analytics and visualisation. He has also participated in multiple hackathons.

Skills: Java, Python, Kivy, RStudio, Rattle, Gephi, GameMakerStudio,Tableau.

JAMES ANDREW POHADI

Experience: A sophomore in SUTD studying Information System Technology and Design (ISTD). During the summer, he went for Asian Leadership Programme in Zhejiang University, learning the introduction of machine learning. He is interested in automation, machine learning and math.

Skills: Python, HTML & Javascript

TEE ZHI YAO

Experience: Currently a sophomore in ISTD. Interested in pursuing a career in software development and also how technology can be used to improve lives.

Skills: Python, Java

User Journey

- **Device is first attached on cart before boarding, this will record the amount of items to be loaded on.**
- **Once plane lands, device can be reattached to the cart, to calculate quantity left. Refill amount will be updated to Firebase**
- **Warehouse supply management team will have access to Application, and will be able to prepare exact amount required to top up.**

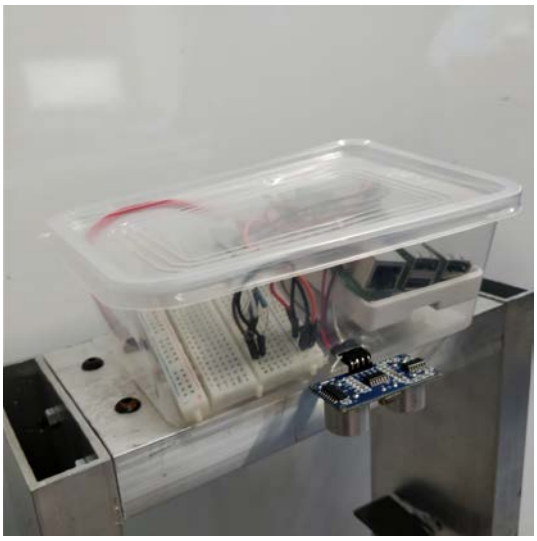
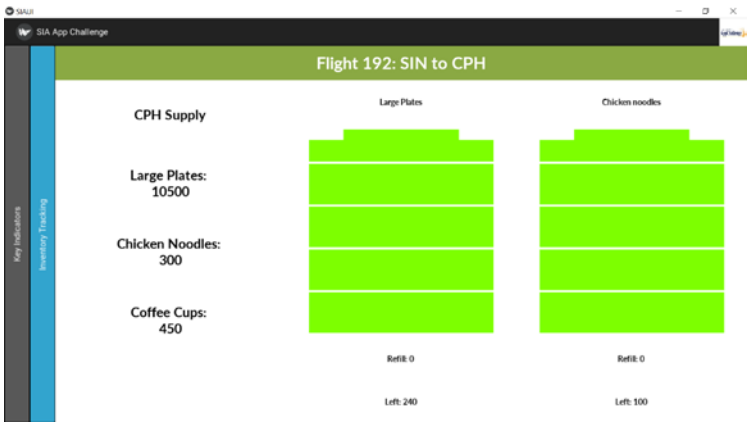


Image of our working prototype



What end user at warehouse sees

Links

Video Link:

https://youtu.be/4jCmanZKkEM

Github Link:

https://github.com/HoJinKind/SiaAppChallenge2018