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# INDIVIDUAL LAB REPORT 6

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September 13, 2019

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Wholesome Robotics, Team E

Teammates:

Aman Agarwal

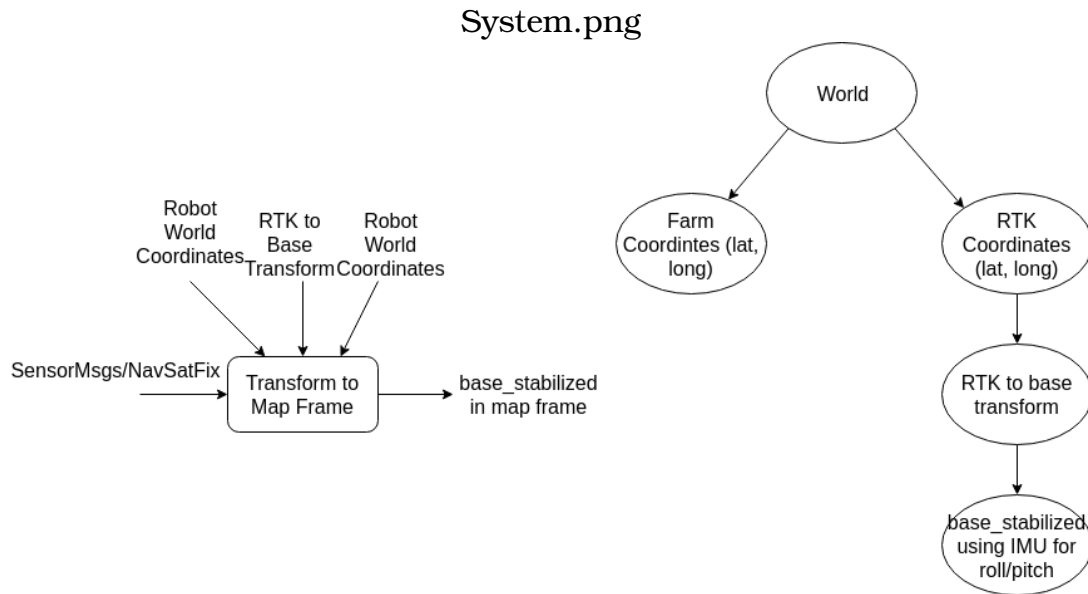
Aaditya Saraiya

Hillel Hochshtein

Dung-Han Lee

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**Figure 1:** Diagram for RTK integration which compensates for the tilt of the robot.

## 0.1 INDIVIDUAL PROGRESS

I have spent most of my time reviewing Dung-Han's code, which is quite extensive. Dung-Han has significantly improved the quality of his code during the review process, which will help us greatly as we integrate his code with the robot side software and the visualization software. I also planned to write a node which inputs the RTK coordinates from the ROS driver and output the location of the robot base in the field coordinate frame. However, I realized when talking to Aman we realized that we actually do not need to write this component, because the controller is a pure pursuit controller and does not require an orientation estimate in order to function. I therefore realized we could use the RTK node from the FRC to complete this part.

## 0.2 CHALLENGES

However, due to the recent hurricane, we will not have access to the robot platform, until Monday, which I believe has the only working copy of that node. In the meantime I have focused on planning the node as shown in Figure 1.

## **0.3 TEAMWORK**

1. Hillel: Developed UI for visualizing plant health
2. Aaditya: Developed UI for visualizing plant health, reviewed planning controls code
3. Aman: Cleaning up of planning controls code
4. John: Reviewing plant health code, coordinate with farmers FRC, planning RTK localization integration
5. Dung-Han Lee: Plant health perception binary classification binary labeling

I reviewed Dung-Han's code and gave him feedback. I also spoke with Aaditya Dung-Han regarding how to parse the timestamps locations out of ROS bags. I also dicussed with Aman what the representation for the map file should be in order for integration of the system.

## **0.4 PLANS**

I plan to write code to transfrom from RTK coordinates to local coordinates after all, because after thinking it out more and planning, it seems we will have time to attempt the stretch goal of improving online localization. For this, I would like to attempt a convnet based row detector. I would like to use the same module to convert RTK coordinates to local field frame coordinates so that I can use the map file to automatically label ground truth row detections in lidar point cloud data. I belive this will enable rapid development of a new, more robust row detector.