Autonomous Food Delivery Robot

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Background

One of the challenges for new college students is transitioning to dining on campus. Even though colleges offer a variety of restaurants, challenges like academic stress and time management reduce the chances of students having the time to find the right food choices for them.

As a solution, the *Autonomous Food Delivery Robot* will reduce the time spent on food by removing travel time and time wasted waiting in line. Like other autonomous robots specially designed for certain tasks like interactions in the office and rescue missions, the *Autonomous Food Delivery Robot* is specialized for the UCI campus and takes advantage of how most of its restaurants are located on or near Ring Road.

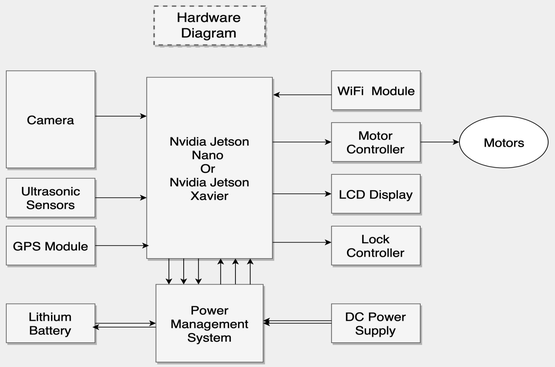
Since Ring Road is circular and accommodates vehicles, the *Autonomous Food Delivery Robot* can easily use it as a highway for food delivery and deliver more food to students in a lower amount of time. This will help reduce the cost of food delivery and offer students another option for ordering food on campus.

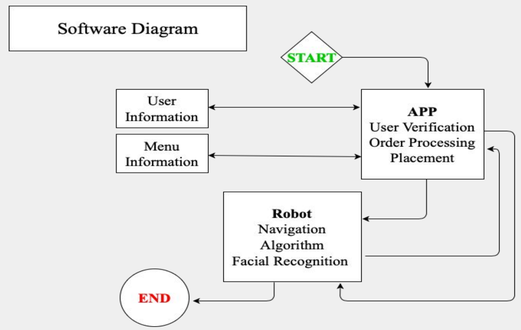
Goals

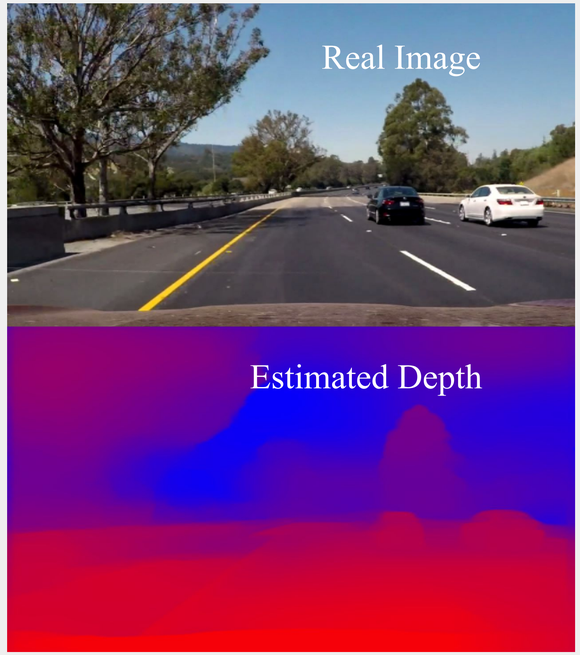
- Build a robot with a battery that lasts long enough to traverse Ring Road carrying 1kg of food.
- Create an algorithm that makes the robot go to a set destination without colliding with anything on the road.
- Build an app with a security and a management system for orders and deliveries

Team Organization

Team Members	Responsibilities		
Aakif Hussaini	App Development	Algorithms	Fabrication
Prannay Kapur	Hardware Design	Fabrication	Robot Security
Kevin Lum	App Development	Algorithms	Hardware Design
Ceyu Xu	Algorithms	Robot Security	Fabrication
Jingpeng Yu	Database	Fabrication	Hardware Design

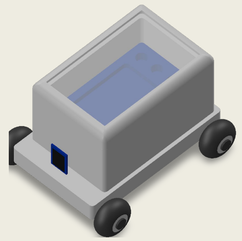






Progress

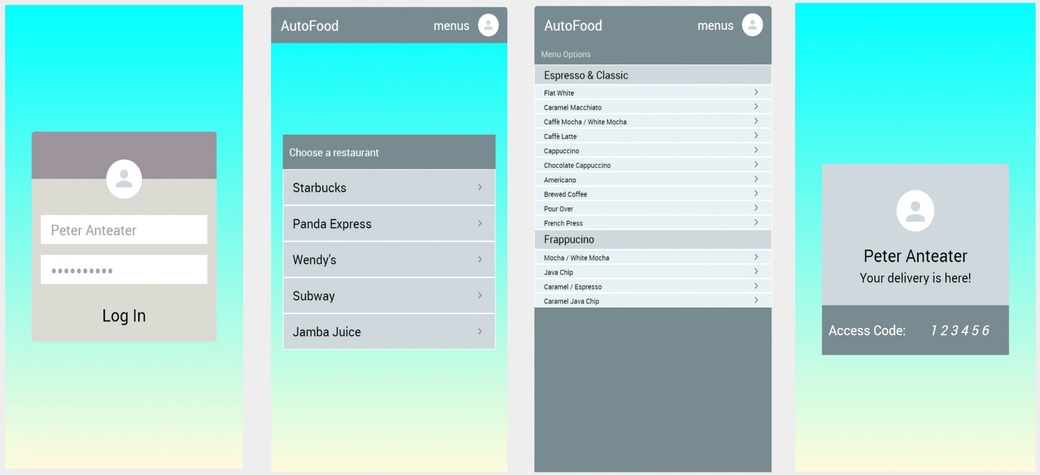
- ✓ Designed the software and hardware diagrams
- ✓ Designed the robot model in CAD
- ✓ Developed basic object detection
- ✓ Determined necessary hardware specifications for robot



Component List

- Camera
- Ultrasonic Sensors
- Lithium Battery
- Nvidia Jetson
- Power Management System
- Wi-Fi & GPS Modules
- Motors
- Wheels
- 3D-Printer
- Tablet (optional)

App Layout



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