Main Issues to overcome:

Driving in adverse conditions

* Treads?
* Four-wheel drive

Opening doors

* Door-mounted opener?
* Call out to people in the building
* Strong robot?
* What about when the doors are locked
  + Does the robot need an ID card so that it can enter the building?

Climbing stairs?

* Treads?

Chassis

* 80/20 extruded aluminum to make a structure from scratch

Safety concerns for driving on a sidewalk

* How big can the robot be before it is too big?

Recharging

* Where would it recharge?
* Could it plug itself into a charging station?

Power

* How much power will the whole system use?

Navigation

* How will the robot know which direction to go?
* What about alternate paths when there is construction?
* What sensors does the robot need other than the Lidar sensor?
  + How does the Lidar sensor work in the rain?
* GPS system for outdoor navigation
  + RTK allows for extra precision, which will be needed for navigating on sidewalks
  + RTK uses a fixed beacon that acts as another satellite for the GPS.

ROS

* What is it, and how do we use it?

Computing platform

* ROS and the Lidar sensor are the limiting factors.

Use Case:

* Audio sensor so that the robot can know when there are people or a golf cart driving past.
* How will we interface with the robot?
  + Touch screen, buttons, etc.
* How to open doors
  + Open door sound to trick people into stopping by
  + Will the robot open the doors itself, or is there an option for having the doors open automatically?
* What kind of mail must this robot deliver?
  + A wide variety, but Mr. Paich would now for sure
  + Volume and weight?
* Some sort of messaging system to alert Mr. Paich
* How often would it need to deliver packages?