Default Idea:
Problem: Current rovers that scout and map Mars are too expensive and take a lot of resources to produce.

What Currently Exists: NASA/SpaceX current Rovers are really expensive.

Our Solution: Building a more cost effective rover for Mars. Potentially 'disposable' rovers that will be of temporary use but will have a much cheaper production cost. (Includes solar panels that auto rotate.)

Jeffrey

Problem:

- Food delivery robots cost too much.
- https://www.technologyreview.com/2018/01/30/145935/why-sidewalk-delivery-robots-still-need-safety-drivers-too/#:~:text=Their%20limits%3A%20At%20the%20AI,every%20sensor%20is%20quite%20crappy.%E2%80%9D
    - Starship Technologies:
        - Each robot costs $5500
        - Starship has to employ operators to remotely control the robots when necessary

What Currently Exists:

- Starship Technologies has a goal to lower the cost of each robot to $2250
    - The robot will pay for itself in 2250 deliveries
    - Average delivery charge $1-2
    - 6 deliveries a day for a year (with no maintenance costs)

Solution:

- Make it cheaper
    - A robot with less range, less features, but still delivers from point a to point b
- Make the robot to be used in a closed setting, without having to cross streets, don't completely cut out the delivery person
    - Ex. spaced out stations of bots across a college campus. A network of bots that can communicate with one another and deliver between different stations for pickup, charge at different stations or transfer goods to another bot

Bk

Team Name suggestion: Vertical Zone

Problem:

- Not having a full display of an object.

What Currently Exists:

- 3D LED Fan
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Our Solution:

- Integrate a LED fan to mimic a hologram that is able to display the screen of a smartphone via Bluetooth

Tobe

Team Name:

Problem: Takeout during COVID requires a worker to come out the restaurant to drop off food, since customers cannot come in restaurant/ store for social distancing

What exists: Current scenario for ordering takeout:

1. Customers call in with a phone, confirming vehicle
2. Worker looks for vehicle in parking lot
3. Worker leave food in a bag on the hood of the car and steps back 6 ft
4. Driver picks up the food and gets back into the car
5. Worker collects bag and goes back inside

Solution:

Idea 1: Each parking space is marked with numbers/codes. Customers use app to select which slot they are currently parked in. Restaurant loads customer order into a small rover that navigates to the selected parking space, minimizing any contact between customer and store when ordering food.

Idea 2: Same general idea with rover, but instead of using a predefined parking lot grid, a map of the parking lot appears in the customer's app, and the location of the car can be tapped on the screen to bring the rover to the car.

Universal Features:

Collision detection: Ensures the rover doesn't bump into any people or obstructions outside while navigating to car
Order confirmation in app: Rover will not dispense food until customer confirms that they are standing in front of the rover using the app

Johnny

Problem:

1. Bicyclists are in danger on streets ever so often or their bikes are often stolen
2. House robbery are common due to lack of awareness when owners are away/asleep
3. Smartphones are adding onto each generation (e.g. modern issue of dual screen)

What exists:

1. Newer safety technology for helmets involve safety upon impact (e.g. protective fluid, airbag) but not to alert before accident; lock technology that can be broken
2. Smart houses equipped with security outside (front door camera) and comfort control & appliances inside (lights, AC) but not does monitor for security in case if someone suspicious is already in
3. Various small attachments/bluetooth to other devices that may take up additional/uncomfortable space (e.g. telescopic lens, separate speakers)

Solution:

1. Bicycle and/or helmet attached with sensors; connects to smartphone to alert of possible collisions, road conditions, weather; implementation of bicycle security to prevent theft
2. Internal Home Sensor System (+ recognition of owners/frequent visitors)
3. Additional attachments/modules that can conform to most models for added/amplified features (e.g. speakers, projector, second smartphone screen)

James

Problem: Natural disasters are unpredictable. Some people impacted by the natural disasters will need rations and power

What exists: https://ieeexplore.ieee.org/document/8519868 (Link to only thing I can find that was relevant. Everything else was about dog rescues)

Solution:

1) Storage component for rations
2) Attached power generator/charger
3) Sensors to move around and way to map out area to account for obstacles in affected area