

St. Cecilia School

CycloneBots 48201

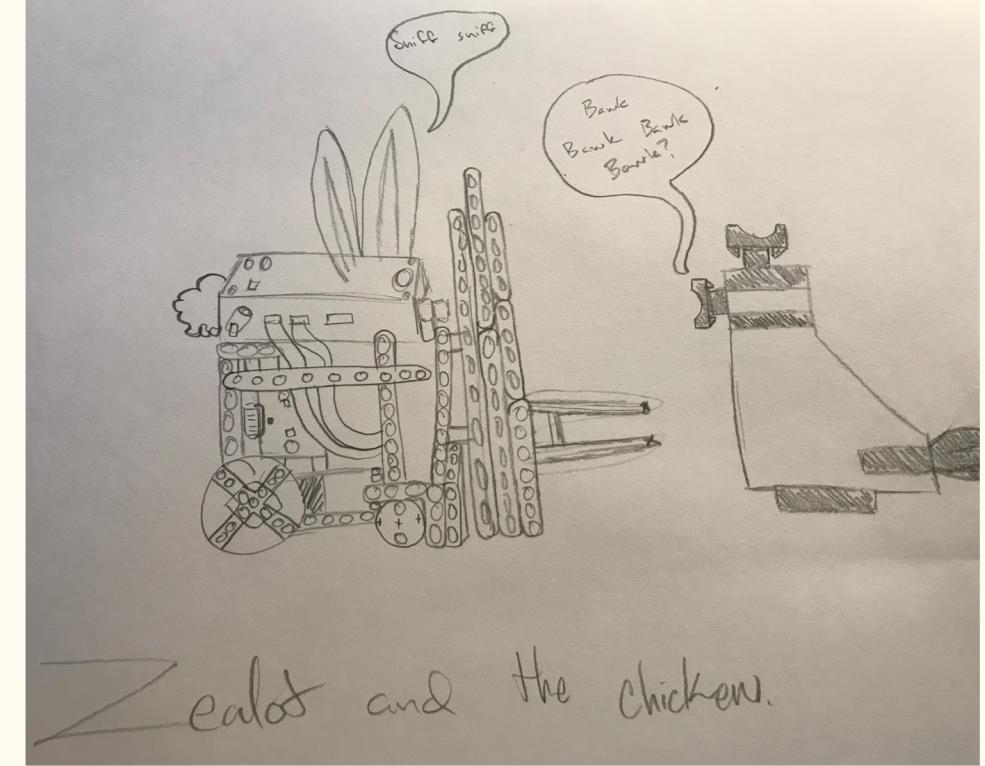
Students:

Mackenzie B (8th)

Conor R, Evan B, Elena G, Madeline R (7th)

Anna R, Jackson B, and Henry P, Max M, (6th)

Kyle G, Jack C (5th)



Zealot and the chicken.

One Team, Many Voices

Discovery | Teamwork | Inclusion | Fun | Impact | Innovation

A Problem

The problem we are trying to solve is the supply chain issue. The roads are constantly clogged, and the seas are backed up.

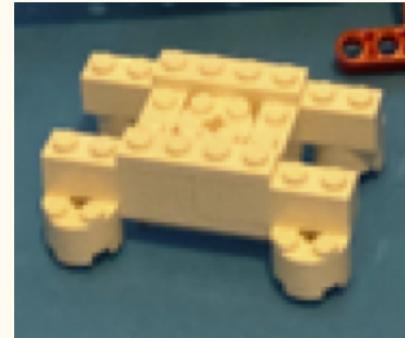
Therefore, we decided to use space instead!

Our rocket bypasses the problems on the ground and delivers packages directly to people.

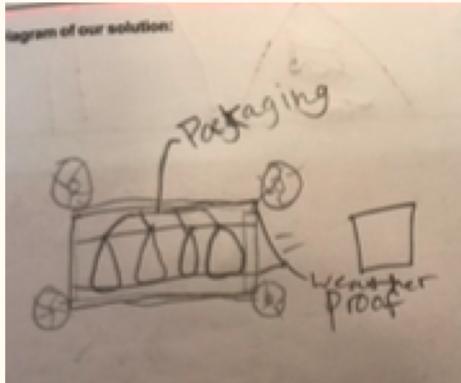
Additionally, we are also trying to solve the job issues.

Innovation Project: ROCKET & DRONES

- The drones are powered by a anemometer on the drone, which spins when it is hit by wind, and powers a small generator(solar power will also be used when the drone is docked).
- They are controlled by humans, who work from home. The people who control the drone are basically playing a video game. However, the humans are working at the same time.
- The reason why humans control the drones is because they are aware of what is around them, so they know if there is birds or other drones they have to avoid. It will also help solve job and supply chain issues.

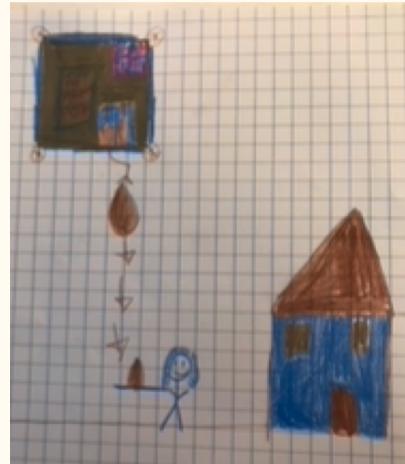
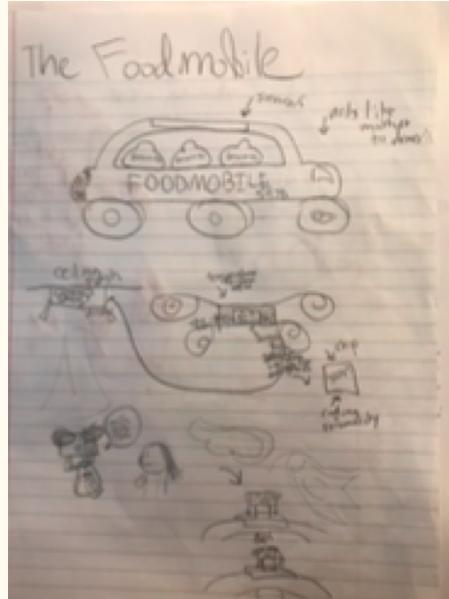


Innovation Project: Many Ideas To Move and Serve



Our Ideas:

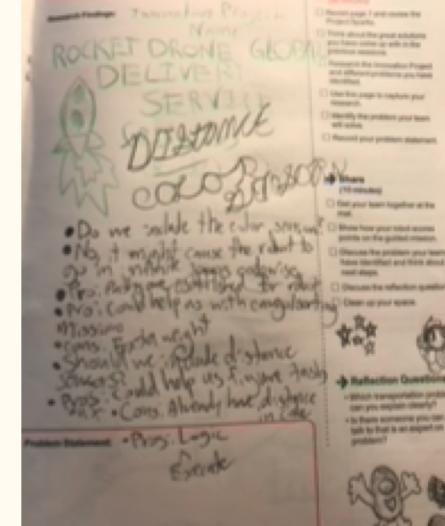
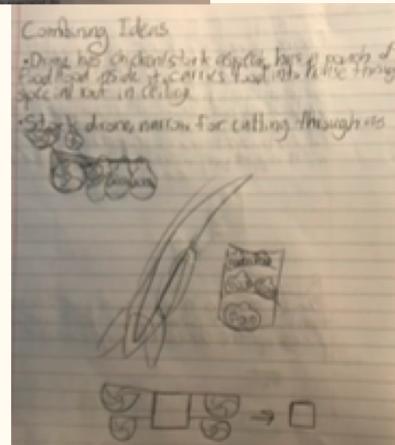
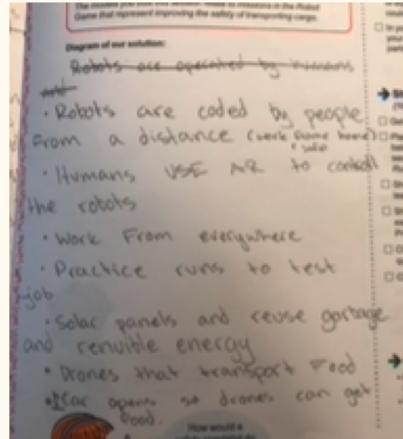
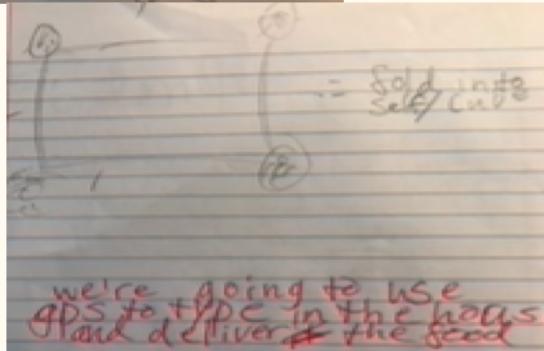
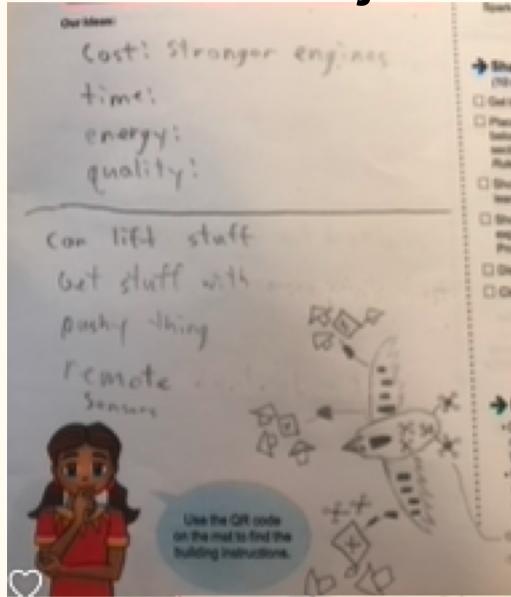
- Use helicopters to carry cargo from ships to port
- Smart-driving trucks + cranes
- Too many manufacturers
- Programmed robots for trucking, etc.
- Precise robots, go to one objective, go to closest objective next to first objective, etc.



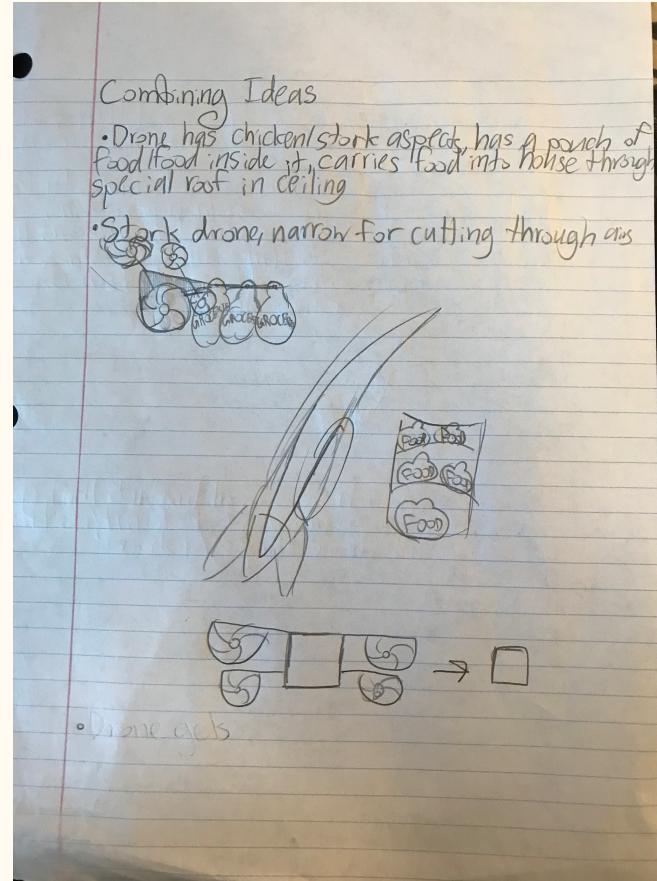
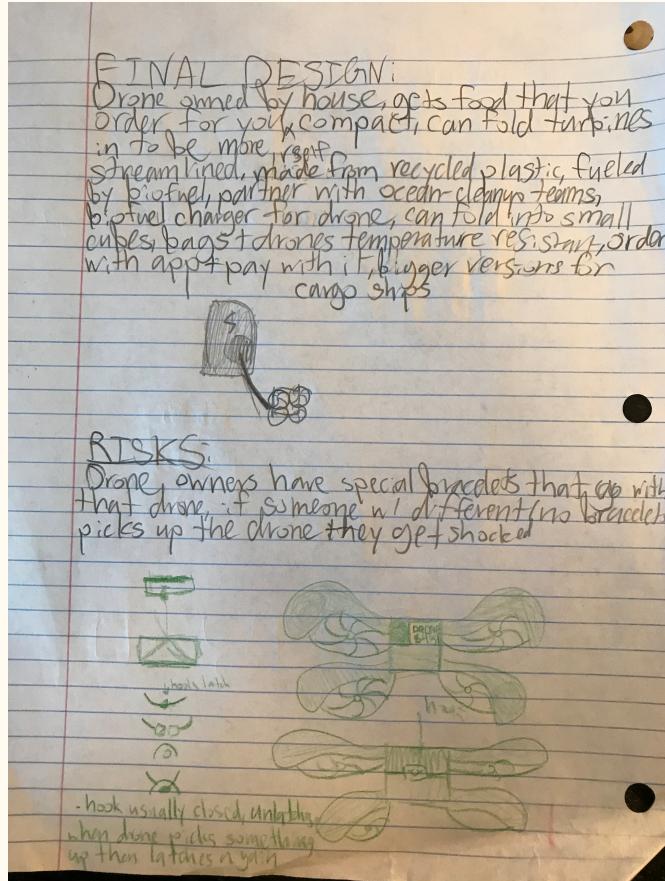
Our Notes:

*Flag?
*It needs to be a bigger grabber

Innovation Project: Many Ideas To Move and Serve



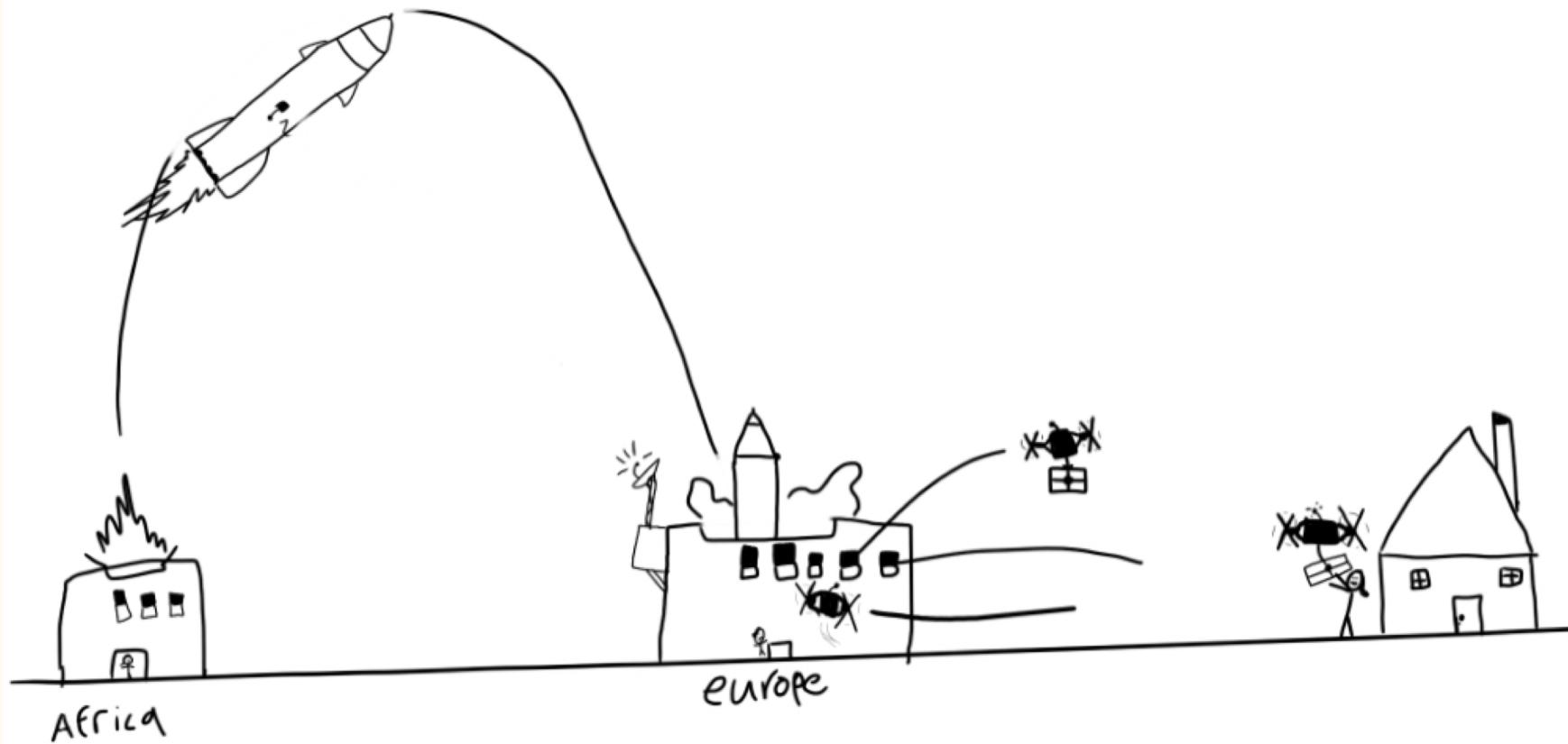
Innovation Project: Many Ideas To Move and Serve



Innovation Project: The Rocket

- The rocket will be powered by a biofuel reactor.
- It will be launched from home base and with the use of GPS it will find the next center.
- The rocket will use SpaceX rocket landing tech, will be unloaded by robots, and will be loaded onto drones.
- The drones will scan a RFID code, telling it where to go, and the time to reach its destination.
- After the drone delivers the package, it returns back to home base and is charged by a solar battery.

Innovation Project: How the rocket will get from A-B-C



Innovation Project: How they are powered.

- Rocket- it is powered by a separate thorium and tungsten reactor, which is safer and cleaner than an uranium reactor.
- Drones- they are solar powered.
 - They are also powered by the anemometer.

Additional Research and Interviews

Innovation Project: Jim Clancy Interview - Part One

Jim Clancy - Product Line Director, Nike. Inc.

- 1) What are common mistakes that you see happening many times?
- 2) What is the thought process when designing products? How would you encourage innovation?
- 3) What is the most commonly overlooked subject in your field?
- 4) What is your favorite design that you have either seen or made?

- 1) Getting discouraged/disappointed when your innovation fails - Much trial and error and steady improvement - Not listening to everyone when starting an innovation project - Everyone pitches in
- 2) What problem is being solved? - Bold ideas at beginning - Research/insights - Consumer type - Understand consumers, empathy - Consumer feedback - Screen testing - observing testers
- 3) Amount of mathematics/manufacturing involved in producing
- 4) Surgical equipment for heart surgery - Simple, easy to understand, could save someone's life if used correctly in the future - Initiative

Jim Clancy, Nike Product Director

Innovation Project - Jim Clancy Interview - Part Two

- 1) Do you have any advice that you think would help us?
 - 2) What transportation methodology have you seen work effectively? Is there anything you would change about them?
 - 3) How does a new project go from innovation to actually produced?
 - 4) Is there anything you would do to improve the outcome of this project? Is there anything you could stay away from?
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- 1) Work as a team - Bold ideas
 - 2) Autonomous cars - AI - Flying cars with vertical lanes and horizontal lanes - Future - sci - fi stuff (e.g., teleporting)
 - 3) Other people agree - Criterion - Amount of products produced - Price - Volume - Manufacturing processes (cheap, high-quality, etc.)
 - 4) People communicating continentally - Work as a team, doesn't matter who gets the credit

Robot Design



Robot Design: Time Invested & Achieving Goals

“Gather round, gather round, for today’s story is about doing things out of our skill set, and failing. Sometimes it is better to use the things you can do, for greater a price.” We all gazed up in wonder at the Storyteller as he called us for a lesson.

“Once upon a time, there was a magical land where robots helped out all kinds of communities with their daily lives. One day, a robot named Chicken was asked to make a large delivery of a turbine blade to a truck that would take it to a certain wind turbine farm. Chicken attempted to do as his neighbor asked, but try as he might, he could not center the turbine blade completely onto the delivery truck that would take the turbine blade to this farm. He eventually had to give up, and give the job to Zealot, a more experienced robot. This, my children, teaches us that although we may try as hard as we can to complete a task, we sometimes have to leave it to someone else and move on to do other things we can do.”

Robot Design: Challenge Considerations

- The best distance for getting the robot from home to the platooning trucks is 14 - 15 cm
- In the “Air Bud” (M03) challenge, if the lever is pulled too slowly, the helicopter’s package slides out the back instead of the front
- In order for the wind turbine blade to rest completely on the stand, it has to be perfectly centered on said stand
- Attachments such as the fork, the hockey stick, and the bridge flipper are used to reduce code and add functionality to the robot

Robot Design: Vertical Movement

We use a rack and pinion as a forklift for precise vertical movement to complete challenges such as Air Bud (M07).

Interviewing Jesuit High Robotics Team Members

We talked to some high schoolers about our project and they liked it, but they asked us why we would use a rocket, and we did not have an answer.

Q: What are some improvements we can make to our innovation project using your experience in Crusaderbots?

- One suggestion we would make to your project it to be more collaborative and organized, but morale is definitely there.

Q: In your experience, what are we doing well?

- I definitely see that everyone is trying to get everyone to try everything, which is good for trying to make sure that everyone finds a good position.

Q: Do you have any suggestions or advice for us moving forward?

- I think definitely trying to get more people engaged in the presentations and design aspects of the project.



Interview with Jesuit Robotics Team Member: Ian

Q: What is one common mistake that you see happening many times?

A: The very start, if you're off on where to start your robot and it could go crazy. The most common mistake I see is how you decide to put in a lot of effort, it will go better and if you don't have a good design in the first week, it could give you problems later in the competition.

Q: What is the thought process when designing products, how would you encourage innovation?

A: How is it going to help, how useful is it going to be, depending on the cost, what is it going to do, and how efficient is it going to be to score points? How is it going to help, and how well is it going to help?

A: What is the most commonly overlooked subject in your field?

A: Out of the three fields of experience software is the most overlooked. Without one thing or another it would not work. The mechanics would be the raw circus of the robot. The electrical part would be the nerves. The software is the brain, telling the robot to move and turn. All three parts make up the robot. One thing I love about robotics is that you are able to do a little bit of everything.

Q: What is your favorite design that you have either seen or made?

A: When I was 2019 my buddy and I made a car that has a sort of hydraulics to lift it off the ground, and launch it in the air. It was a mix of human controlling and code instructions. In the end it was cancelled because of Covid but it was still really fun to do.

Q: Do you have any advice that you think would help us?

A: If you have a straight goal you will get it 90% of the time you will get it. Use your communication and teamwork skills.