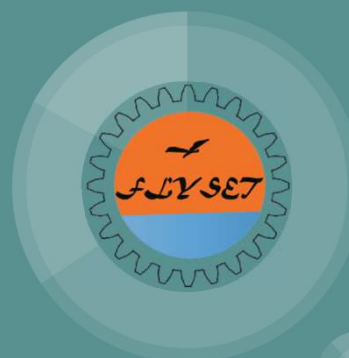


2018 FLYSET FTC Workshop

12764 RoboVikings

(9/3/2018)



Presenters

- Rudy Mitchell
- Timothy Ruble
- Arthur Turner
- Elijah Smith
- Justin Lopez
- Querin Noriega
- Daniel Nyarusa





RoboVikings 12764

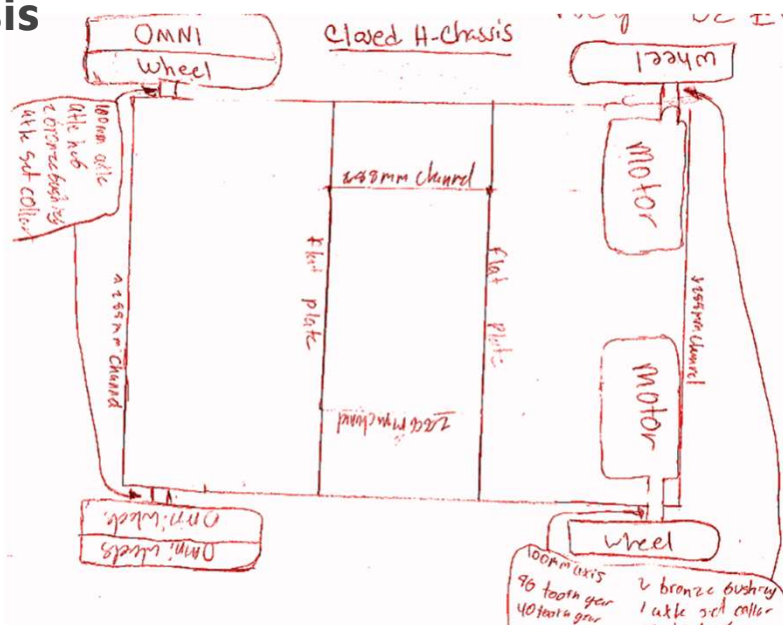
We are Team 12764, RoboVikings. We are 8th graders from Vanston Middle School of Mesquite ISD. Last year was Vanston's first year hosting FIRST Tech Challenge team. The team was founded with 10 students, 1 coach, and 2 mentors. This year, 2018-2019, is a brand new team of eight students. That makes us a rookie team. We have been getting ready since this summer going to clinics, working hard on our robot chassis design and programming skills.



12764 Chassis Design Specifications



Closed H-Chassis Rudy & D'Erick



Closed H-Chassis

Chassis Design Spec

- My chassis design is a square shaped chassis made to be symmetrical and even which we think will help with balance and helping to keep the robot standing right side up.
- We added 2 regular wheels and 4 omni-wheels total.
- Two regular wheels have motors and are connected in the back
- Two front omni-wheels on each side to help with sharp pivots and turns.
- Two flat plates on both sides of the chassis to give it more space for building on top of the finished chassis.



Closed H-Chassis

Design PROS Prediction

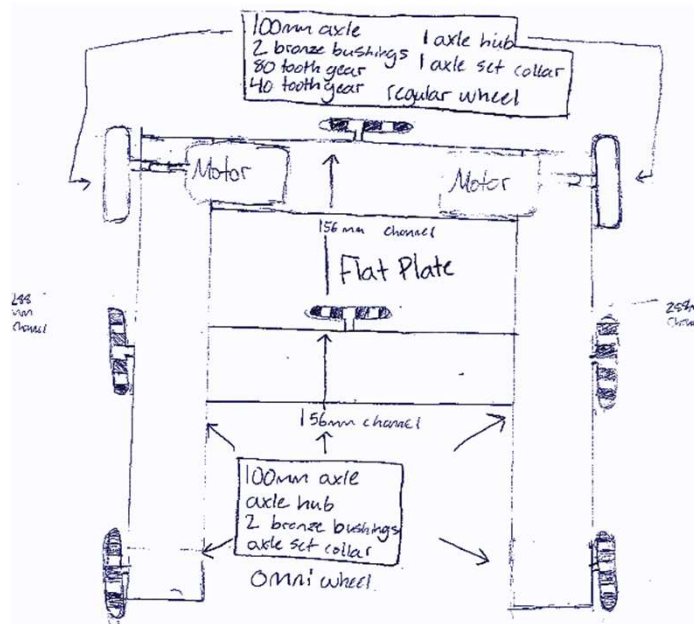
- Square shape for balanced build
- Double omni-wheels for better turning
- Added flat plates for more space to build
- High defense so other bots can't damage it/ tip it over
- Has space to add attachments

Design CONS Prediction

- Open space in middle might be too big
- Less offense to complete challenge
- The omni wheels are pressed together which might affect turning



A-Chassis Justin & Arthur





A-Chassis

Chassis Design Spec

- Six omni wheels for precise turning
- Two 288 channels and two 156 channels to form a chassis
- Two batteries for the two wheel motors
- A flat plate for increased space



A-Chassis

Design PROS Prediction

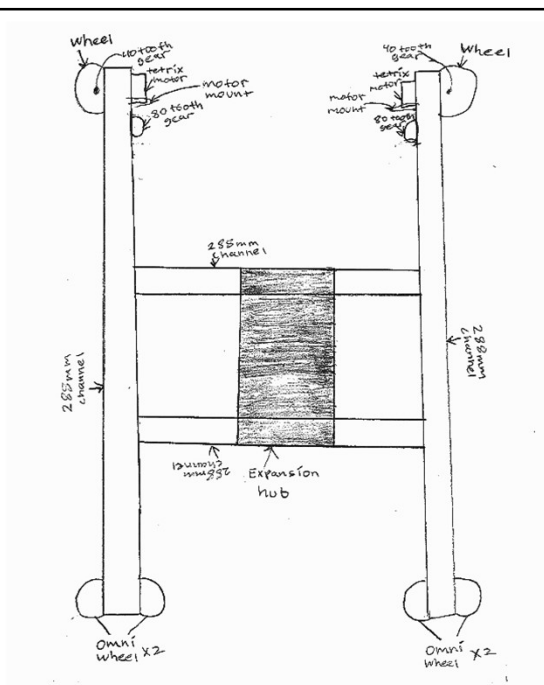
- Wheels in every area for balance
- A chassis for offense and defense on either side
- Multiple omni wheels for precise and fast turning
- Flat plate for improved area space
- Two batteries for increased performance and charge for the main wheel

Design CONS Prediction

- Lots of wheels higher risk of wheel problems
- Not left with a lot of space for wiring
- One battery for each motor may lead to too much power for each wheel
- Can't support much weight in the back



H-Chassis Timothy & Daniel



H-Chassis

Chassis Design Spec

- The channels, batteries and expansion hub helps to balance the weight and allows it move faster.
- Omni wheels helps to turn angles better.
- Added 288mm channel so that we could be able to have more attachments, room for all our gears, and other materials.
- Two omni wheels so that it would be able to turn , but run smoothly just like our regular wheels which are in the front to move smoothly.
- The 40 tooth gears are connected to the tetrix motor so the 80 tooth gear that is connected to the wheels can run fairly.



H-Chassis

Design PROS Prediction

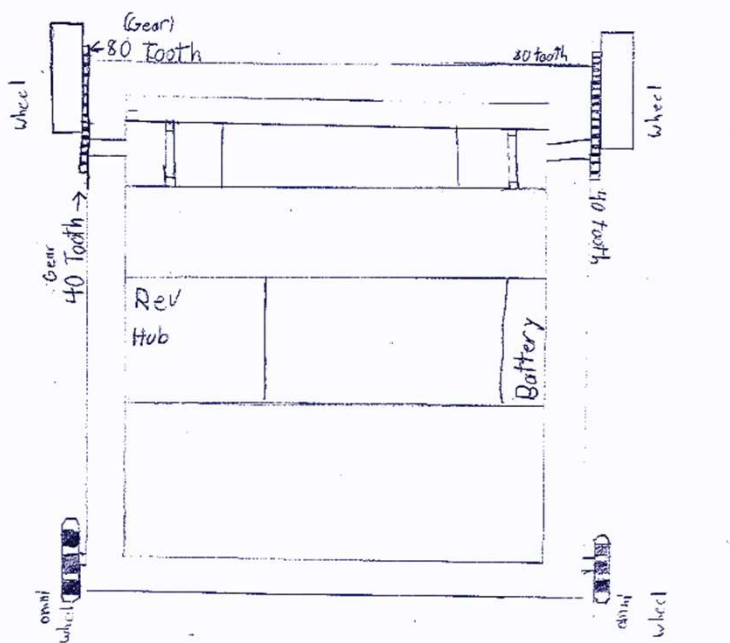
- It has defence and offense.
- Use 2x Omni wheels on each side for greater/faster turns.
- Wheels allows allows the bot run smoother and not so rocky.
- Used 288mm channels to allow for attachments.
- The weight of the chassis does not weigh to much.

Design CONS Prediction

- The opponents robot could get stuck around the expansion hub.
- Too much weight in the middle can make the robot unbalanced.



Closed H-Chassis Elijah & Querin





Closed H-Chassis

Chassis Design Spec

- Two omni wheels in the front to have better mobility
- Two wheels at the back with motors
- Expansion hub is moved to the side for better wiring
- More space to balance weight



Closed H-Chassis

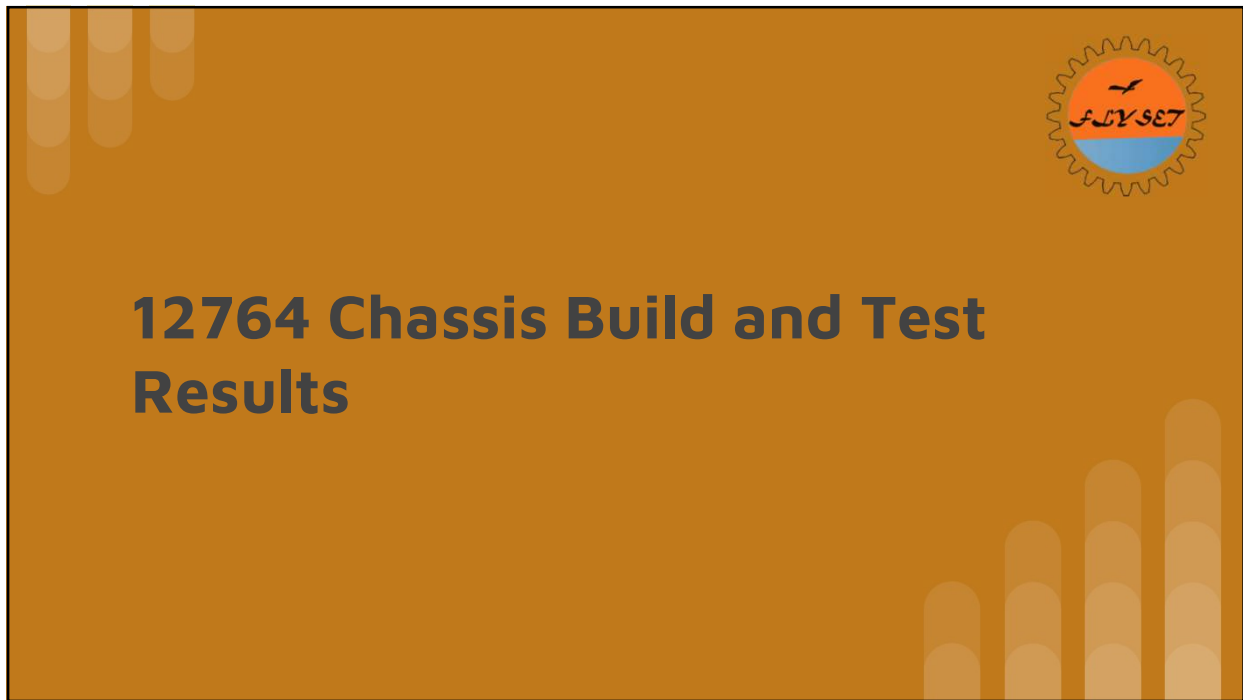
Design PROS Prediction

- It is defended from all sides
- The design will let us be able to have more room to balance out weight
- The omni wheels at the front will allow better turns
- Moved the motor to enhance our mobility

Design CONS Prediction

- Too heavy due to attachments
- Slower due to 2 wheels at the back
- Slow turning due to only having 2 omni wheels

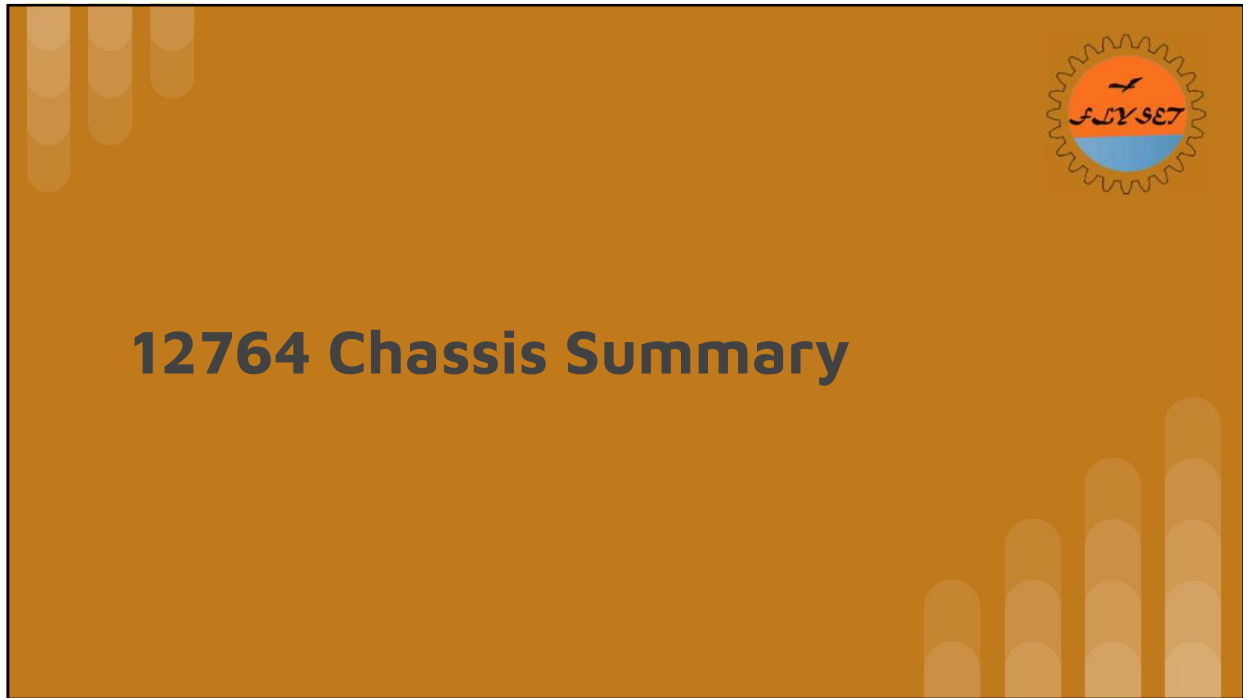




Build & Test Results

While we are dedicated and had high hopes for completing the projects before the workshop, due to unplanned circumstances, we were unable to of build and test our robot chassis designs.





Summary

While coming up with these chassis designs we discovered how different chassis designs work. For example, the A-Chassis works better for defensive and more casual play challenges. On the other hand, the H-Chassis works for a more offensive play since it has 2 bars on both sides. Finally, the Closed H-Chassis works better for a more even defense and offense approach to the challenge trying to be completed. Also we learned that the chassis have to be perfect in order for the rest of the robot to function correctly. If the chassis is loose or falls apart at any time the entire robot could malfunction and we would automatically fail the challenge.

