

## Team Photo



## Team Profile

Taylor - Programmer and Builder

Clayton - Builder and Notebooker

Ryelin - Builder and Driver

Lila - Notebooks ~~and~~

Anthony - Driver and Builder

## My Projects

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# My Projects

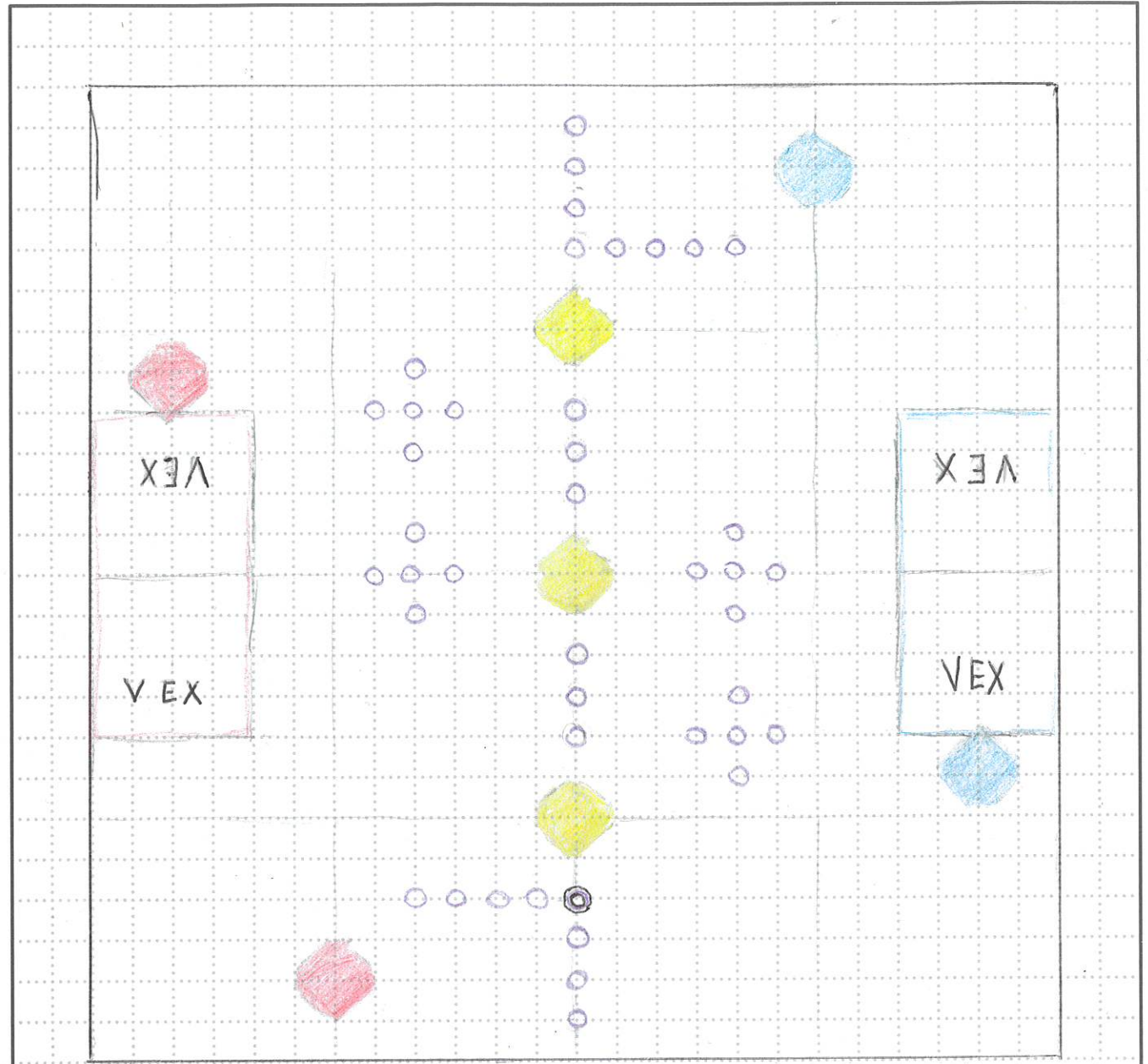
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project

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Project Management: Explanation of how and when this project is going to be completed. Who will be involved? What materials are needed? What is the time frame?



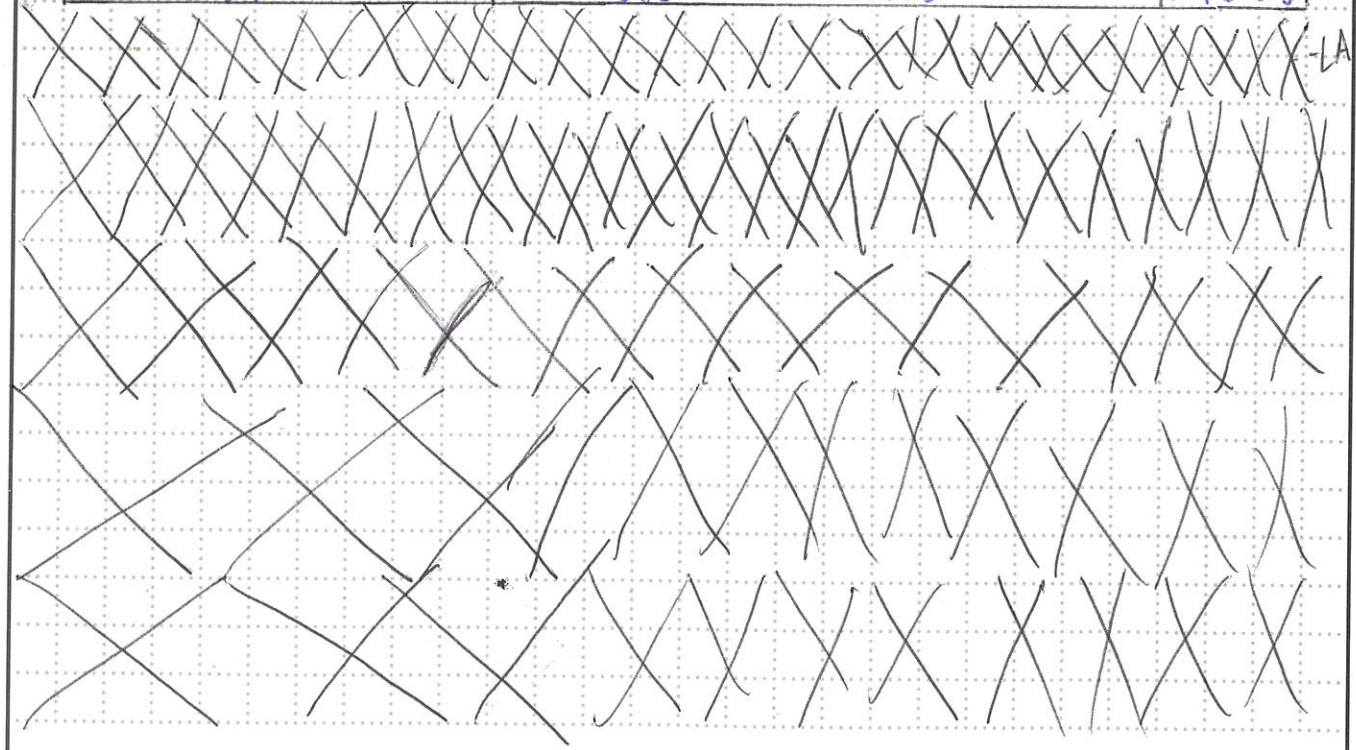
This year's game 'Tipping Point' is comprised of 72 rings/purple/  
 7 mobile goals, 3 neutral mobile goals/yellow/ 2 alliance mobile  
 goals/blue/ 2 alliance mobile goals/red/ and, 2 elevating platforms,  
 1 blue and 1 red, for the corresponding color alliance.  
 Autonomous Period lasts 15 seconds followed by a 1 minute 45 second  
 Driver Controlled Period. During autonomous period the point is to  
 score as many points as the other alliance. to gain the additional 2  
 points from the autonomous round. Driver Controlled Period is to get  
 [continued on page 2]

project Game Field designed by: Liza Axx witnessed by: Clayton S.  
 date: 10/19/21

As many rings onto the mobile goals. Towards the end is going to have to try and elevate the mobile goals along with the robots onto the elevating platforms.

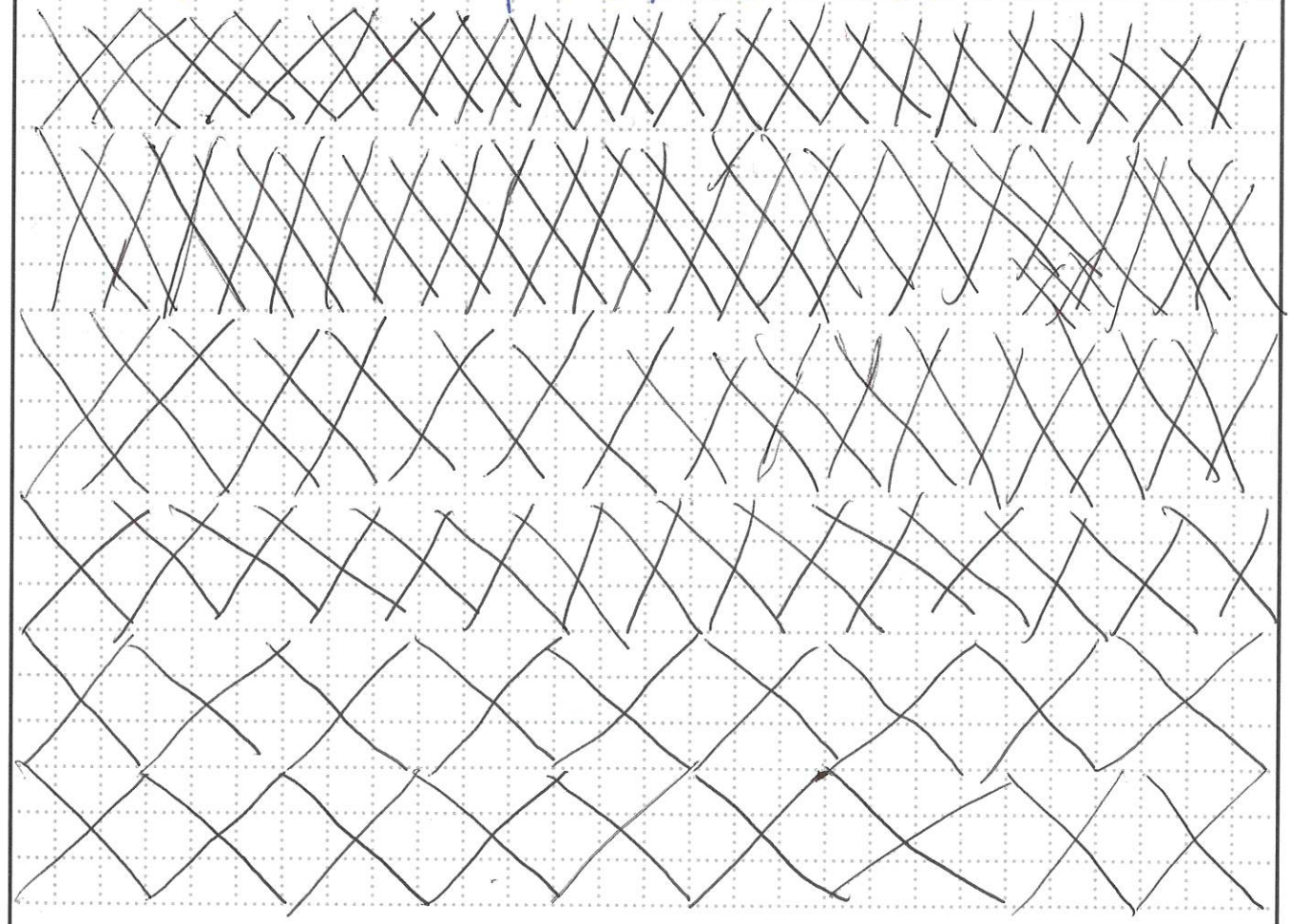
### Scoring

Ring on/in a scored Mobile Goal	Mobile Goal / High Branch	10 Points
	Any other Mobile Goal Branch	3 Points
	Mobile Goal Base	1 Point
Neutral Mobile Goal	Either Alliance's Home Base	20 Points
	Elevated on a Balanced Platform	40 Points
Alliance Mobile Goal	Correct Alliance's <del>Home</del> Home Zone	20 Points
	Elevated on correct Alliance's Balanced Platform	40 Points
Robot Alliance	Elevated on correct Alliance's Balanced Platform	30 Points
	Win Autonomous Bonus	6 Points



project Scoring designed by: Lila A. witnessed by: Clayton S. date: 10/19/21

At our 1<sup>st</sup> practice, the team sat down to discuss our goals. The builders broke apart the game and decided to focus on scoring just the rings on the mobile goals. After deciding on going with a Pneumatic Plunger design, the team was set about collecting and organizing supplies that would be needed. But upon further investigation, the builders discovered that we did not have the proper supplies available to us. So for the remainder of the practice we joined together to discover other options for the robots.



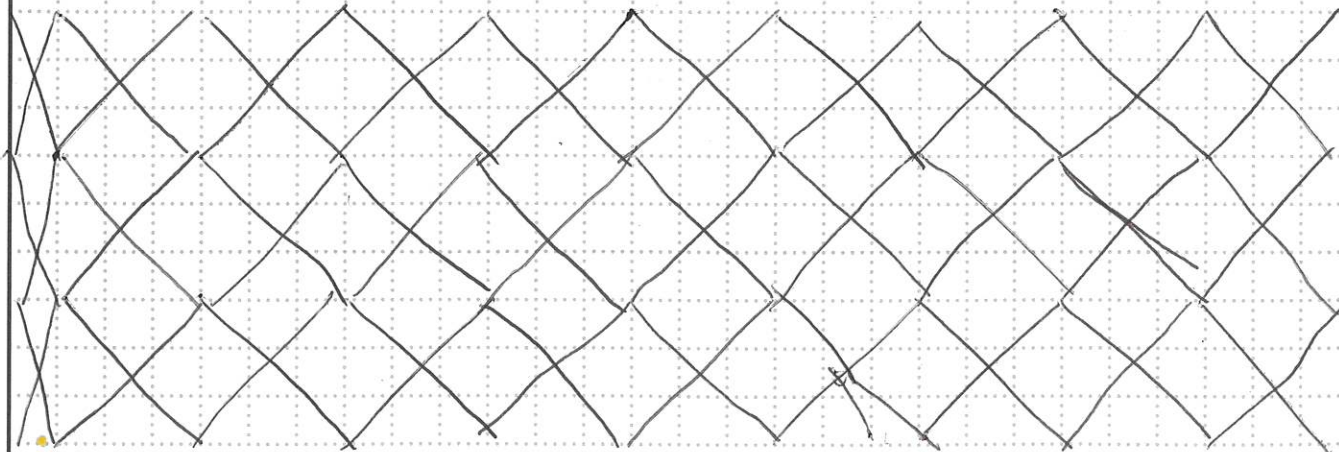
project 1<sup>st</sup> Practice - Brainstorming designed by: Lila A. witnessed by: Clayton S. date: 9-2-21

We started with what we had last year which was an X-Drive and dismissed the idea after discussing how that would work in this years game with the platforms, the X-Drive would not work

Then we moved onto a standard 4-wheel 2-motor drive, which gave us the mobility we wanted but we ran into a problem, the bottom of the chassis scraped on the bottom of the platform when first climbing on.

We then decided to go with a 6-wheel tank drive to accommodate for that problem with the standard drive.

We considered the H-Drive, but ultimately decided against it because it could limit movement ability and slow or stop the robot.



project Drive (old)

designed by: *Liliana*

witnessed by: *Clayton S*

date: *11/16/21*

At first we started with a joint lift that had pneumatics or "the technology of air"

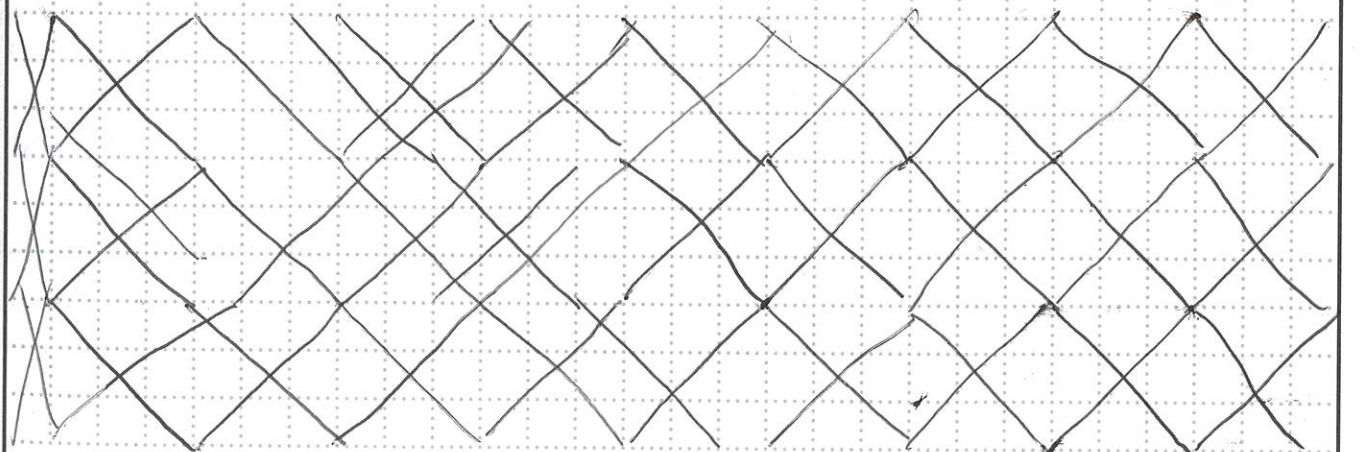
We didn't pursue this idea very much after the base lift because we didn't have everything we needed for it.

So we then changed it to a dish that would hold the mobile goals. But it had put our lift over the limit, which made us reconsider our design once again.

We then decided to change it to a horizontal claw but the mobile goals were too heavy to be picked up with that design.

So we then changed it to a vertical claw but it was too weak to pick up the mobile goals as well.

So now we have changed it to a 2-claw design.



project Front 2: H. (old)

designed by: *Liliana*

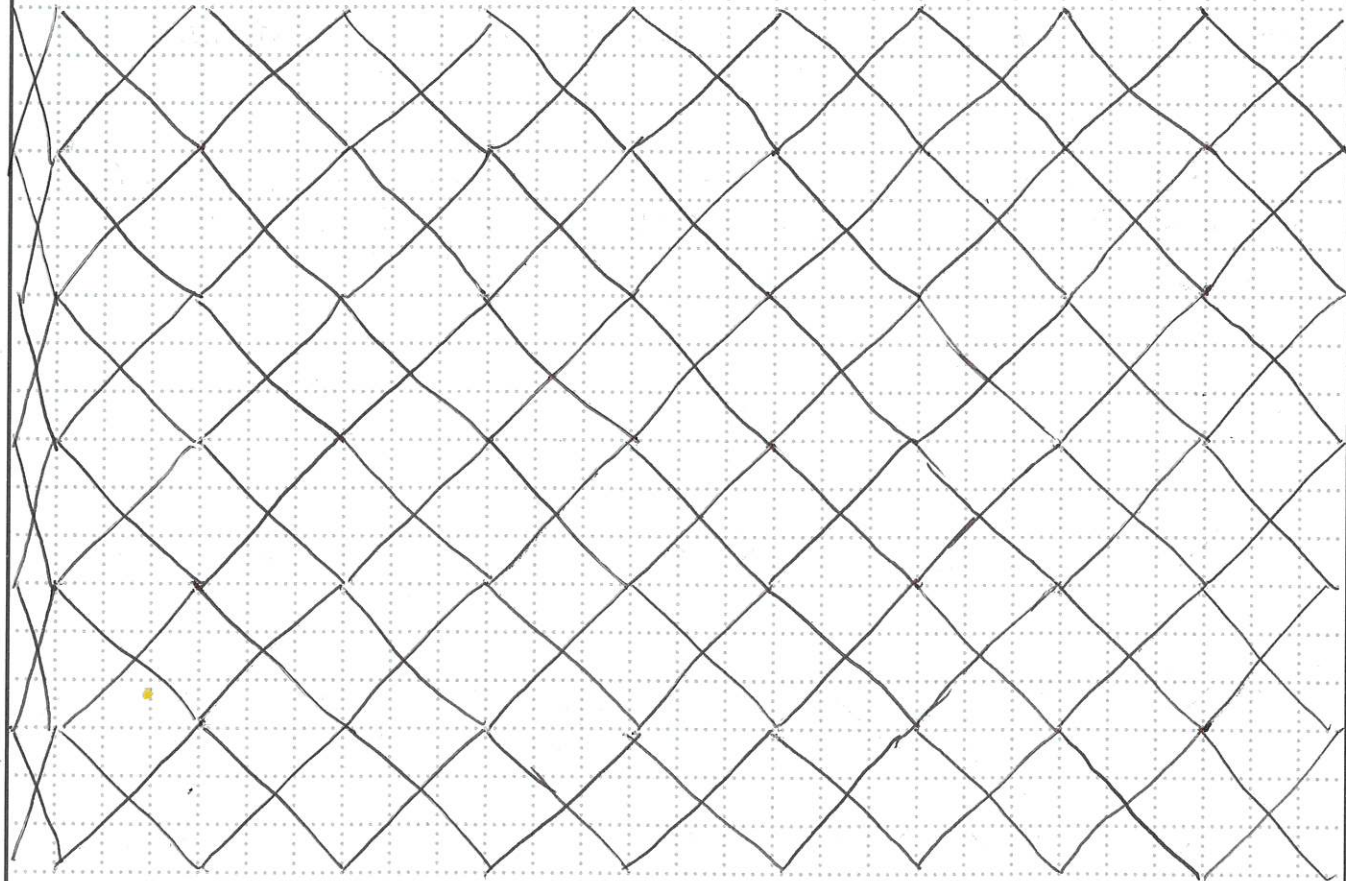
witnessed by: *Taylor M*

date: *11/17/21*

At first we started with a pair of shorter side claws that was a modified version from a robot that was used last year.

Later on we had to lengthen the claws to wrap around the mobile goals so that we can move the goals around to try and score the mobile goals.

We now have decided to not have a back intake.



project Back Intake (old) designed by: Zelin Lu

witnessed by: Ruelin

date: 11/19/21

We changed the position of the lift downwards so we could have more leverage on lifting mobile goals.

We changed the claw to be horizontal and we also got rid of one claw.

We improved the coding to be more efficient for our drives.

We also reimplemented the back intake to hoard mobile goals.

We had troubles lifting the mobile goals with our old front intake so we then decided to come up with a different idea without changing the robot.

We didn't change the wrist.

We had to gear down the lift as low as we possibly can.

We also made a plex-glass pan to help the claw with the mobile goals and to try and pick up the rings as well.

We have also decided to ditch the idea of the back intake once more.

We now have a 4-wheel tank drive.

project Changes

designed by: Zelin Lu

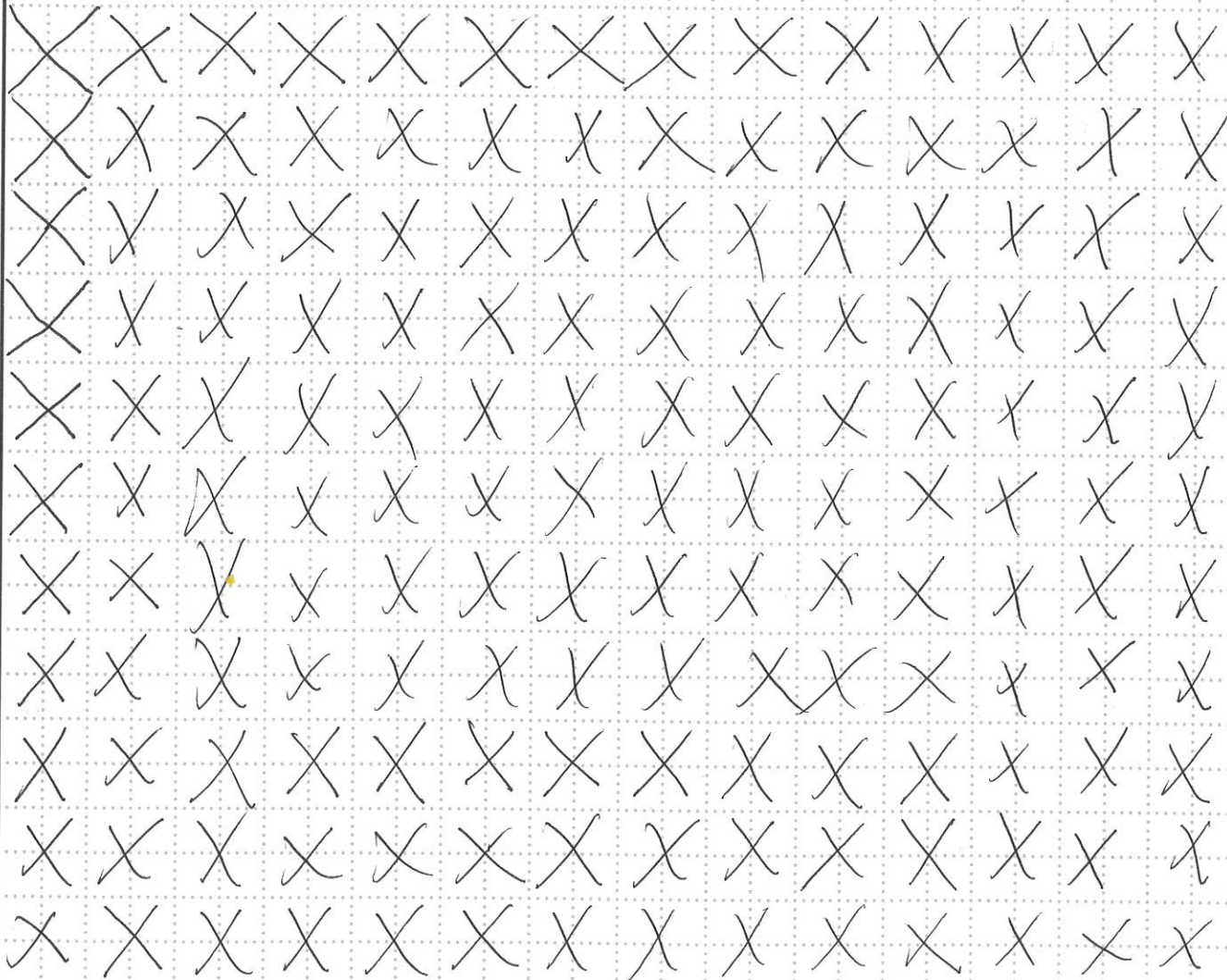
witnessed by: Ruelin

date: 11/16/21



We've added a rack and pinion. Also added a motor to the rack and pinion to allow extension. Started to work on a claw that would allow us to pick up rings and mobile goals.

We also cut a portion of the underside for our bottom lift to get us lower to the ground.



project Rack and Pinion designed by: Zena

witnessed by: Clayton Smith

date: 11/16/21

As a team we went off by ourselves and wrote responses on what the robot would be better with or with-out and newer design ideas from different team members. There were 4 responses in total. All of the responses are anonymous.

The responses were, 'to take the claw off and leave the bottom pegs.'

'A robot with an arm that can rotate 180° with a claw on the end. This way the arm can be folded allowing us to extend the bottom lift. Also because we need to compete for the mobile goals, a strong drive is important.'

'I believe we should keep moving forward with the current design, I believe if we are able to perfect this, we will take this to state but I don't think our goal should be to pick up the rings. I know they are under used, but I believe that they are still less important than hogging the goals on the beeper bot. If we can get those up and going that specific point we will have a chance. Our 2 arm design was able to pick up two goals at the same time and when we finished we would be able to put them on the platform.'

The last response is on page 10.

project Responses

designed by: Zena A.

witnessed by: Anthony

date: 12/1/21





We've built a new robot. It's an X-Drive. We built a lift that acts like prongs, to grab the mobile goals more effectively. We've also built a new hook, it consists of 2 standoffs, so we can move mobile goals without picking them up. We disassembled our old robot. We changed the code to drive for an X-Drive and new front lift.

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project Robot Changes designed by: Lila A. witnessed by: Clayton Subank  
 date: Jan 5, 2022

Coding - Worked on ~~coding~~ the code for normal autonomous so we pull the goal in front of us and then we go to get the tallest goal in the middle of the field, after a while we started to have issues with our X-Drive drifting to the left.

We noticed that one of our wheels could slide back and forth. We tried to fix it by replacing the motor, but we didn't realize we grabbed a dead motor. Our driver worked on driver skills.

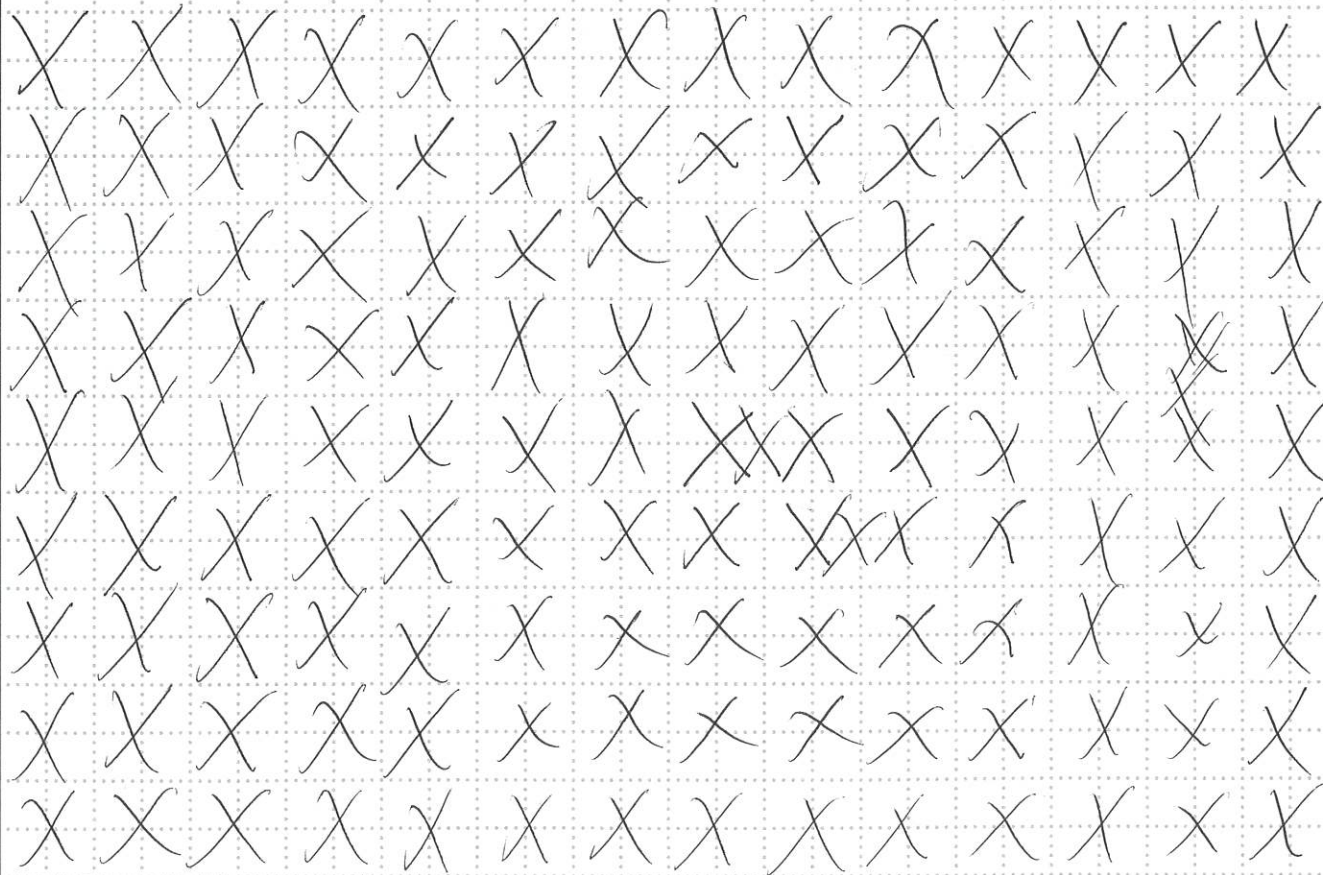
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project Update designed by: Clayton Subank witnessed by: Lila A.  
 date: 1-11-22



Tonight we worked on programming for the minute ~~at~~ autonomous skills. ~~The~~ For our autonomous we start in the corner with the red alliance goal and get each of the goals in the middle to the outside, then drive back and forth shifting for our X-Drive.

We used some time looking at what happens with our robot after driving for a bit noticing that we can't really fix it, so we made sure that when we drift we try to minimize it as best as we can.



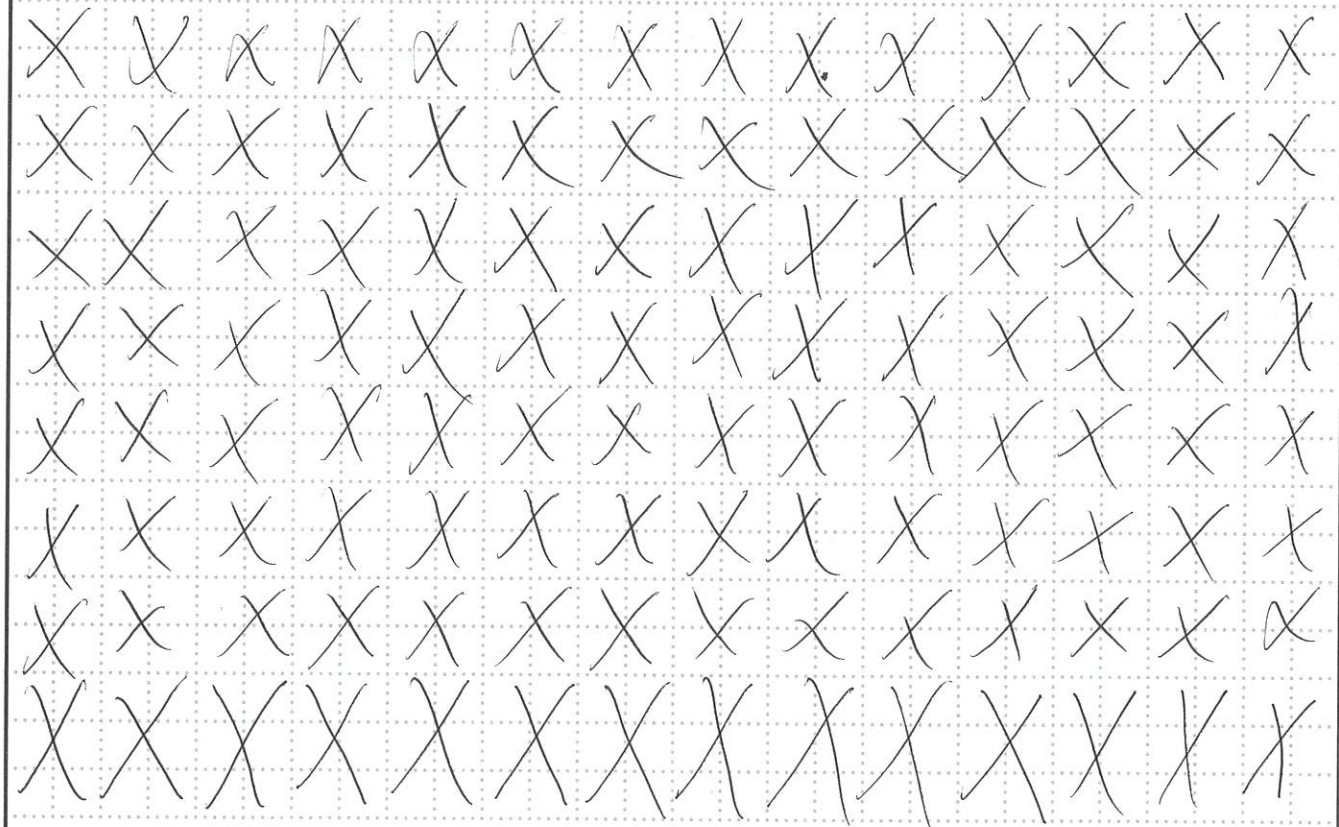
project Practicing

designed by: Anthony

witnessed by: Lila A.

date: 1-12-2022

We've taken the back claw off that we used to pull goals behind us then started discussing a different design. Our two options we have discussed ~~#~~ is a claw that is on a pivot to pick them up. Or an elevator lift that could get them higher. Both ideas present problems the elevator lift can have less grip while lifting them up, and it also takes up a lot more space. The pivoting lift presents the issue if the lifts bump into each other they could get stuck. We devised our robot to move our brain forward and our front lift forward as well to make more room in the back of the robot so we can add the aforementioned lift design.



project Figuring out Back Intake

designed by: Anthony

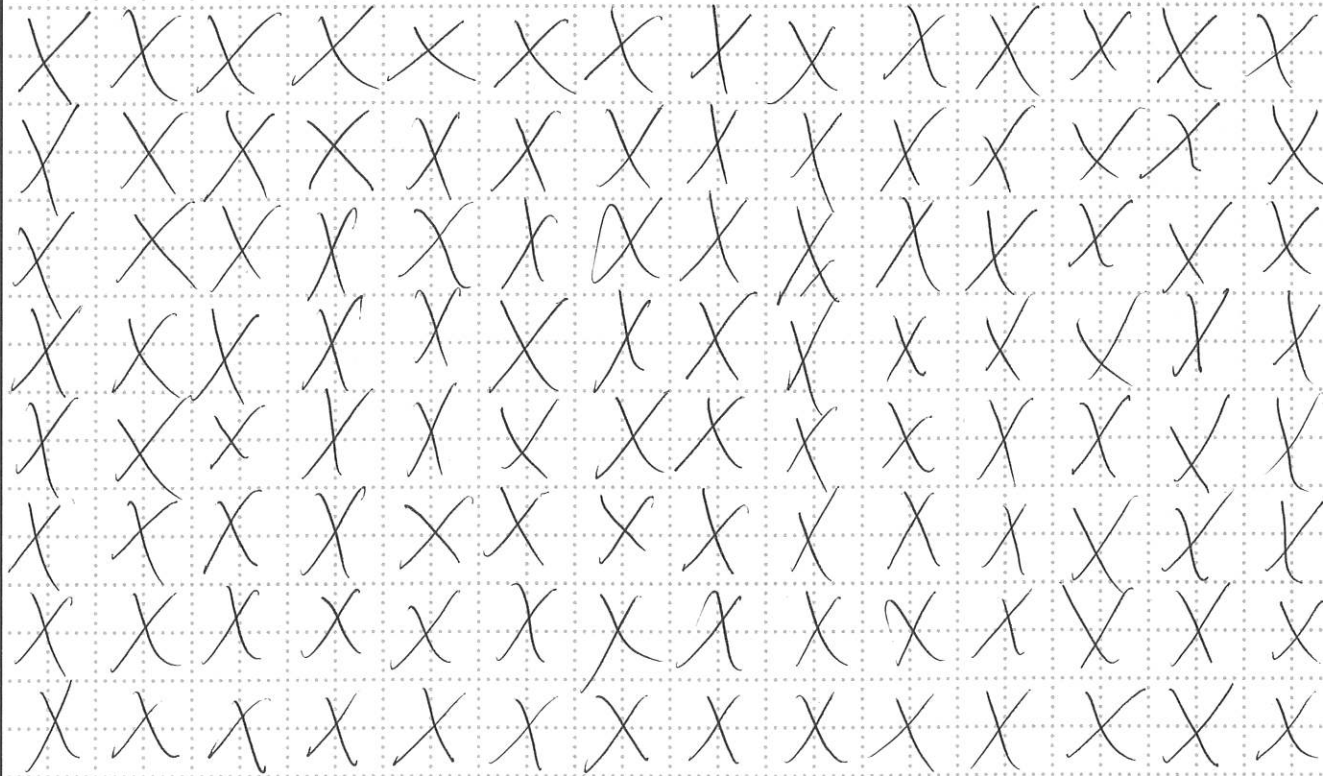
witnessed by: Lila A.

date: 1-25-2022

We decided to start making a copy of our lift on the back of our lift on the back of our robot, while also deciding to hooks on either side and adding pneumatics.

The hooks are used to grab the goals by the arms so we can control their movement, we also want to power these hooks with the pneumatics we intended to add.

We cut out the back of our robot to allow us to add the new lift in the back.



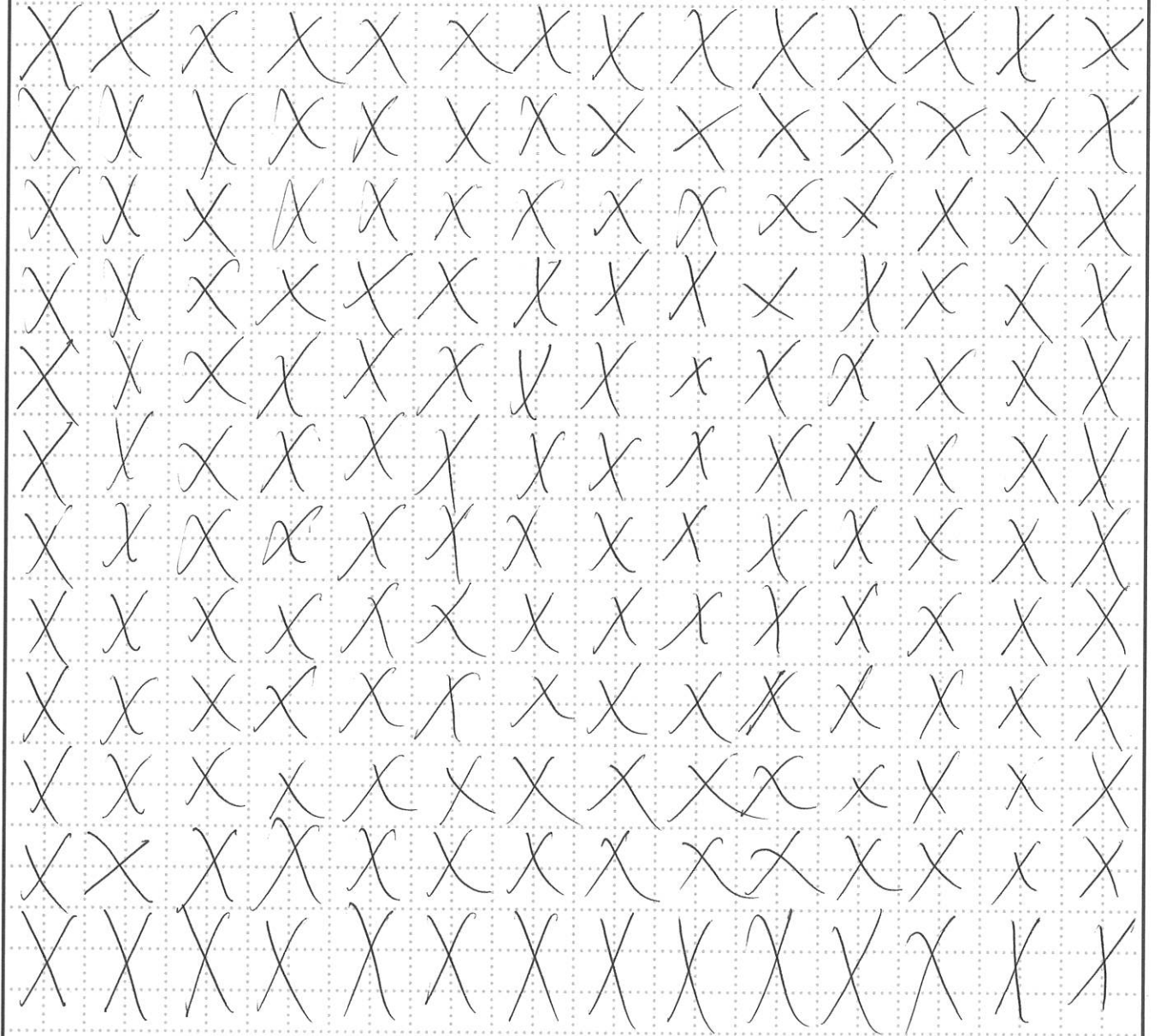
project Pneumatics  
Thinking About

designed by: Anthony

witnessed by: Y. De An

date: 1-26-2022

We added an exact copy of our front lift on the back of our robot, but it's lifted up five (5) holes so we can lift up mobile goals higher.



project Working on Front Intake

designed by: Anthony

witnessed by: Y. De An

date: 2-2-2022





We've put pneumatics on our robot after we found the Solenoid Driver Cables this week, because we weren't able to find them last week. We've been writing our auto from us code and fixing anything that has been needed by needing to be fixed.

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project Pneumatics designed by: *Lib An* witnessed by: *Clayton Zuchowski*  
date: *2-25-2022*

[Empty grid area for notes]

project \_\_\_\_\_ designed by: \_\_\_\_\_ witnessed by: \_\_\_\_\_  
date: \_\_\_\_\_