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Support Shooter, Gear Up			12/3/09

Always adjust the robot

Some websites that might be helpful:

www.firstWA.org chiefdelphi.com

Email: estokely@gmail.com

Disqualifications

Taking balls out of high goal
Pinning another robot
Letting the bonus ball out too early
Shooting on the outside goals early
Touching the lower bar during the end game or atonomaus period
Blocking a ball from a goal
Using a blocking mechacnism ie: sail
Coach or drivers handling the game pieces

Possible Designs:

Surgical Tubing
Piston to push balls out (only legoes)
Pinwheel
Water mill design
It needs to be 17 to 17 1/2 inches not 18 inches to be safe

Engineering Notebook Notes:

Needs to include:

What you did and why Tables and graphs Has to be a print out Discussions with group Group biographies

Team Management Notes:

1-10 students per team
small team concept works well
1-4 students is equal to one mentor
recommend 2 to 3 mentors per team
Competition is the 13th of December
Mentors:

Keep aware of deadlines take pictures of events Team building exercises Group of students does not constitute a team

Facilitate a collaborative and supporting learning environment (make it fun)

Teach problem solving

Keep it sweet and simple (KISS formula)

Help ensure it stays fun

meet and eat

Social events to do together

Assigned a number

Spend time on designing a logo

Include:

A motto

"tag line"

Building exercise

Conduct mentor/leader meeting

Hold team kickoff meeting

Establish roles and responsibilities:

Building/design

Schedule

rules/strategy

operators

coach

Project manager

Hardware and tools

Videos and pictures

Engineering notebook

fundraiser/team spirit

Establish design tools and libraries

CADD

Software development

Parts and code libraries

Collaborative workspace environment

Build a schedule (or plan)

Microsoft project

Schedule is a living document it will change

If schedule keeps moving to the right you are in trouble

Time management:

12 weeks until competition

2-3 hour meetings

meet a couple times a week

keep a collaborative environment

Microsoft Office Live

www.ptc.com/go/first/workshops

software version control

Archive current version of software code

Everybody must have acsess to software

Strategy and design

Hardware design and development

Build a reliable robot

Understand points
Brainstorm many ideas
Don't get focused on one thing
Keep it simple

Testing:

Build a little, test a little

Focus on tele-operated

Time/scoring

Build a Feild

No loose leaf binders

hard bound form

Chec rules for electronic manual

Don't wait to finish it

Thoughts

Simple information

Short summary

Diagrams

5-10 journal entries marked

Neat and organized

Topic, meeting date, who's there, title

Electronic design

USB drive

Laptops with latest version

Event Day Notes:

State Championship

December 13th in Bellevue Highschool

8 a.m to 6 p.m.

Some judging December 12th

Morning will include:

Robot inspection \

Practice rounds

≥8 am to 11 am

Judging

Judging will include:

Interview with judge panel

Engineering notebook check (critical)

Engineering Notebooks:

Highlight things

Check handbook for details

No unneccasary

Give something to them to remember you by

Good logo

T-shirts

Buttons

Trinkets

Stand out

Two fields running at the same time Bring laptop and controller to practice with Do not reschedule if you are not there Contest format:

> Qualification matches Alliance selection Elimination rounds

Gather information about other teams

Exchange information so they get to know you

Awards:

Check handout for details

Strategy and Design 9/14/09

Attendance:

Edwin

Christian

Julia

Andrew

Amelia

Kenneth

William

Brian

Tasks:

General design and mechanism for shooting in the different goals

Figure out the schedule for the robot

Mechanism v.s. software aspects

Important Dates

Important dates:

Competition is December 14

Robot complete by October 29th

Scoring:

Low goal - 1 point

High goal - 5 points

Outside goals - 10 points

Releasing a far ball drop - 10 points

Releasing a close ball drop - 5 points

Yellow ball - doubles the score of every ball in the goal

Strategy:

Atonomous mode target: low goal and high goal (issues with high goal because of spinning)

Tele - operate target: low goal and high goal

End game target: Outside goals with the yellow ball

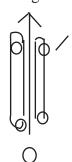
3 mechanisms

Pick up balls

Bring balls to shooter/ storage

Shoot balls

Possible disign for shooting balls:



Shooting the ball using two fast spinning conveyor belts

Kiss - keep it short and simple - very easy to build something complex but it is hard to build something simple that does something complex

Specialize in one task specifically and get that done with good reliability You are allowed to have a 3 inch PVC Serpentile design:



Compact balls into one serpentile tube

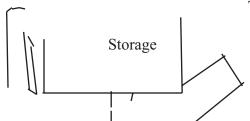
Non-stick pad for creating a conveyor Surgical tubing 24 inch long

Omni Wheels could be a possibility

They would help follow the goal You would lose traction Use two wheels that can pivot

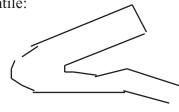
Possible designs:

Basket idea:



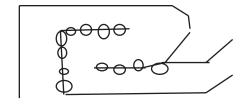
Takes up a lot of space Might jam





Does not take up much space because all one system Not easy to control

Conveyer:



Combines both the serpentile and the basket idea May take up to much space

Attendance:

Edwin

Christian

Andrew

William

Amelia

Julia

Brian

Kenneth

Tasks:

We need to start thinking about what specifiacally the mechanisms need to achieve

We need to think about the strategy a little bit more

Focus on brainstorming and designing some of the mechanisms

Atonomous period:

We need to program 4 different routes

One mechanism to release balls

One mechanism to drop balls

Tele-operated:

One mechanism to suck in balls

One mechanism to shoot the balls

One mechanism to dump balls into the lower goal

By the end we want to start moving to the ball tube to recieve yellow ball in the endgame

End-game:

All the things you can do in tele-operated

Shoot into the outside goals

Get yellow balls

Stil legal to suck up balls

Three mechanisms (possibly two)

Suck up balls >

Shoot balls

> Three mechanisms

Dump balls

Reversing the suck to release balls

Slow the speed of the shooter so the ball dribbles out (possibility of bouncing into the adjacent goal

Release ball shoot

Side strage specifically for yellow ball is a possibility

If you pick up the yellow ball you want it to be the first thing you shoot

Funnel ramp

Conveyor belt (slight squezze)

Wheel with paddles

Material that is a little spongey

Sensors:

Ir sensors n the high goal

Light

Sonar

Touch

Sound

Design Brainstorming

Collecting balls:

Herding the ball underneath the robot

Blades for picking up the balls off the floor

A conveyor belt that squzzes the ball in

Lift up and toss the balls (arm)

Vaccum

Rotating brush to herd balls into the hopper

Storage:

Low basket

Open front into a container

Funnel

Serpentile design

Track

Shelf (trap door for releasing the low goal balls)

Ball tube

Spiral cylinder track

Color sensor seperates the yellow ball our (maybe too complex)

Dumping:

Passive

Conveyor belt (reversed)

Reverse brush

Basket base conveyor belt reversing

Gravity feed

Trap door for spiral or conveyor belt

Ramp for picking up balls to shelf so higher up use a mechanism for dumping

Trap door for the basket

Attendance:

Edwin

GDC - Game Design Commitee

William

Brian

Andrew

Kenneth

Amelia

Julia

Anthony (new member)

Christian

- -Low goals run the risk of being removed and they are only worth one point each (may not make much of a difference to the overall score)
- -Side goals risk the time limit with the fact that you can only shoot on them for the end game (30 seconds)
- -High goals run the risk that the bar spins and you might not make your shot. This could be potentially harmful although you would not lose points you would lower the oppurtunity for a larger score

Defence:

Block/inhibit

Not many points

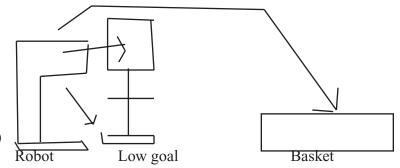
Crash into other robots



Possibly fragile (cannot attack)

Usually shoot

Gain points



One in the low goal is a defensive shot you are not really trying to go for the points but you have your 8 pre loaded balls to get rid of

The shots into the high goal and the basket are offensive shots because you are trying to earn as much points as possible.

Programming:

Do not want sound

Cannoat have camera tracking (too complex and does not come in the kit)

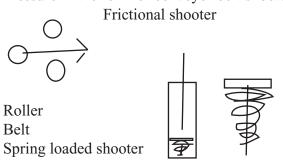
Possibly use color tracking

A passive sensor is one that you control yourself

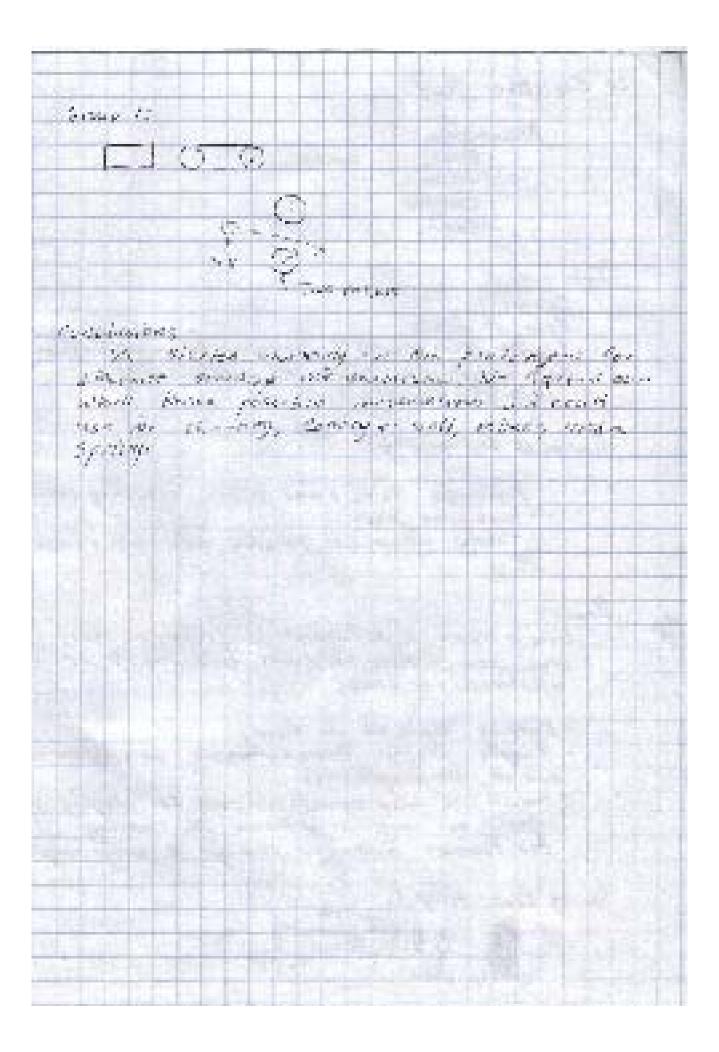
An active targeting sensor is one that tells you when it receives the IR signal

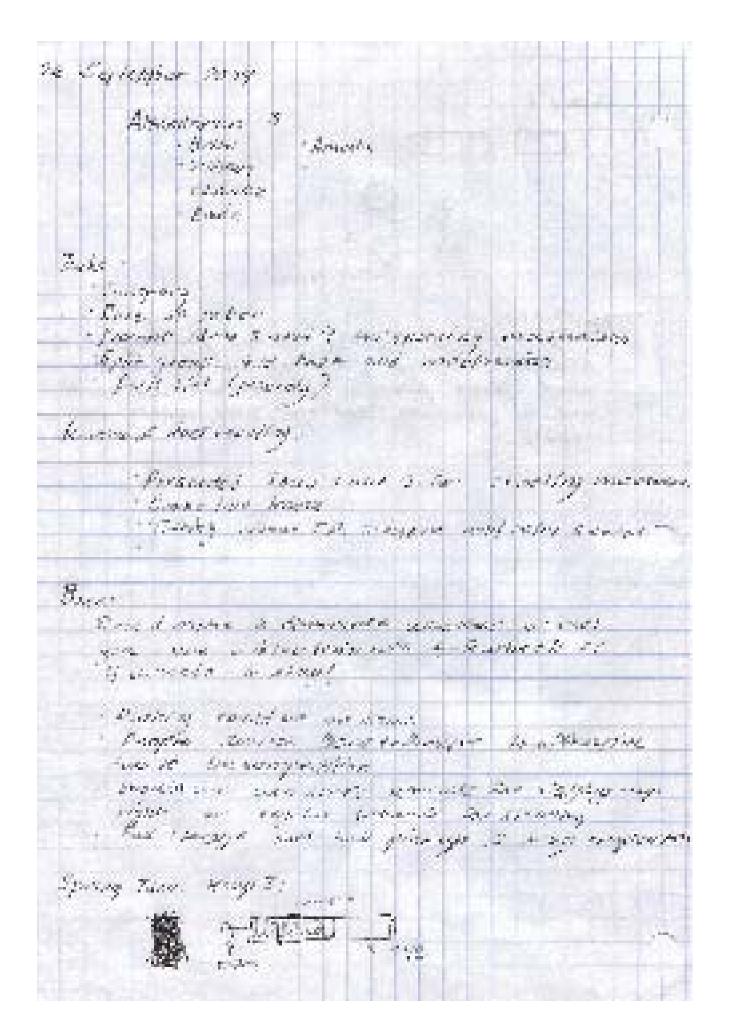
Mechanisms:

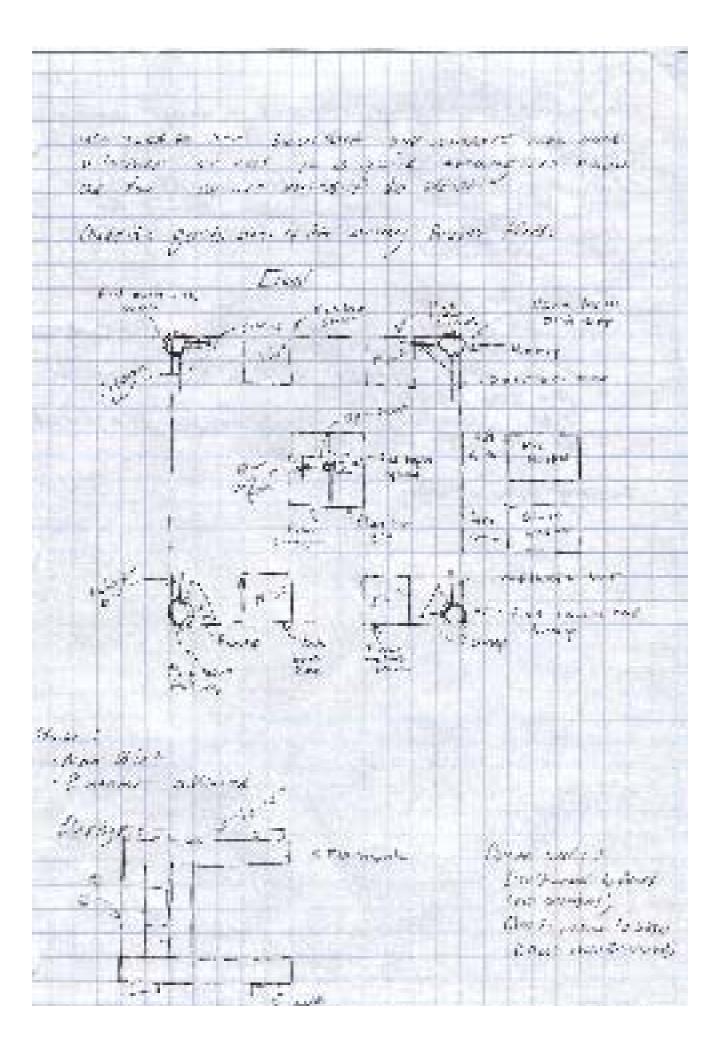
Pressure in the form of conveyor belt shooter





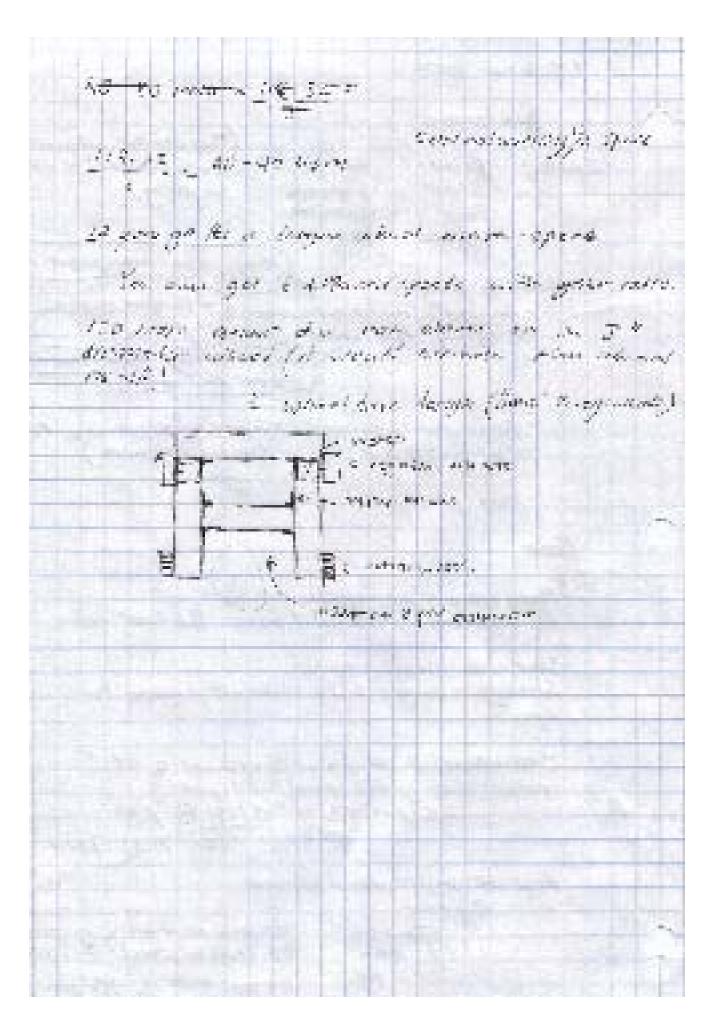


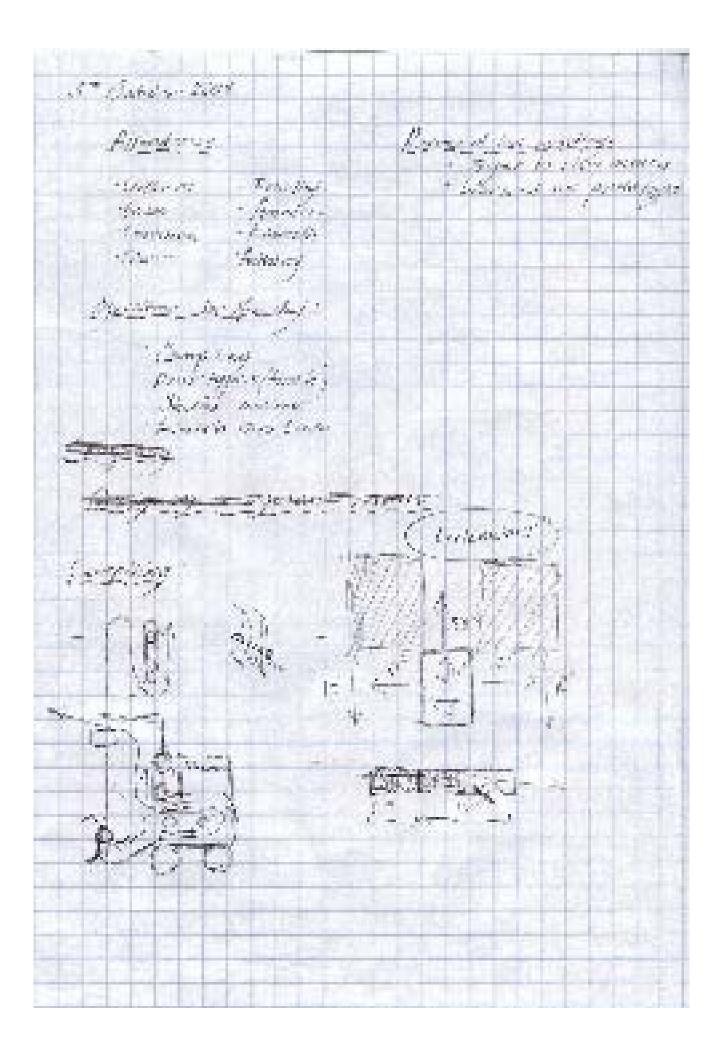




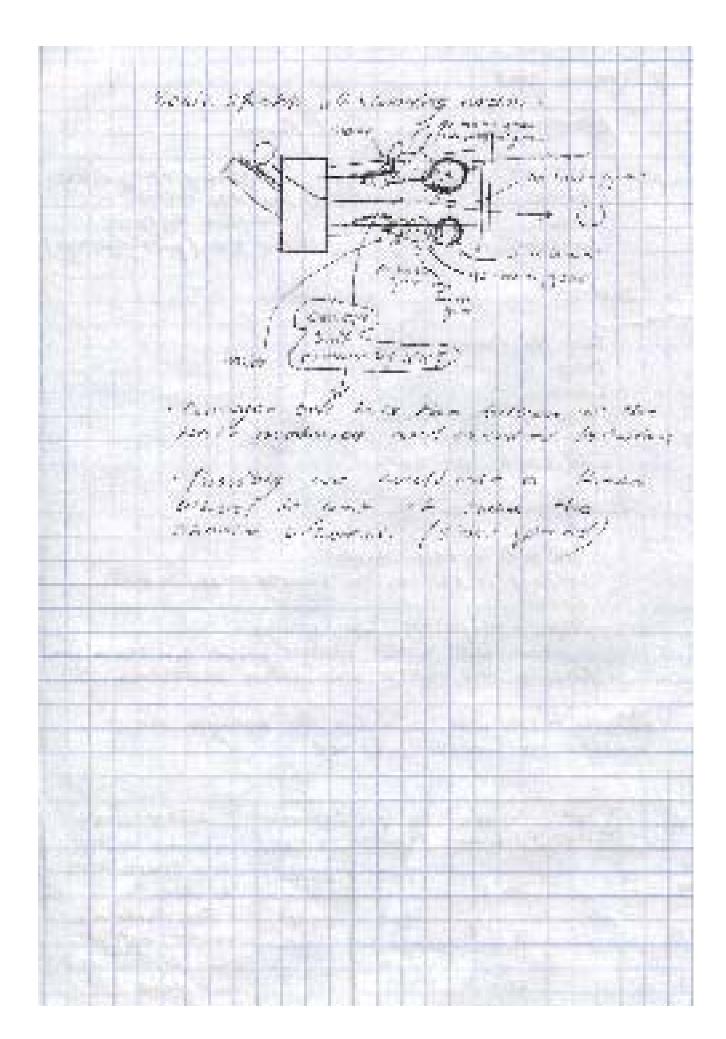
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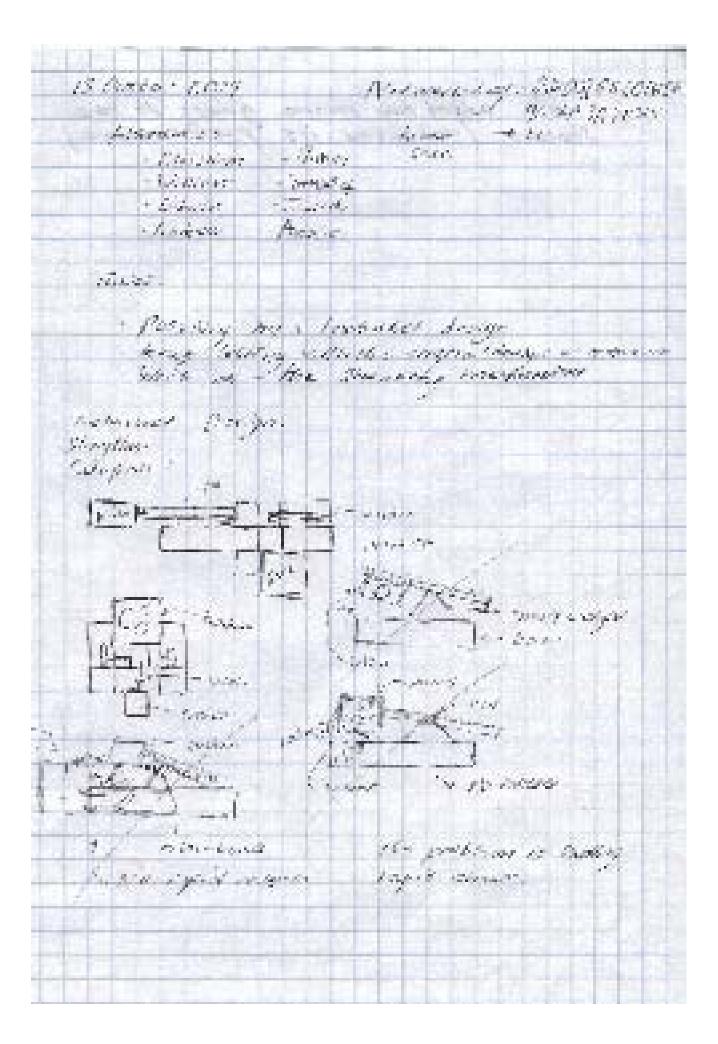
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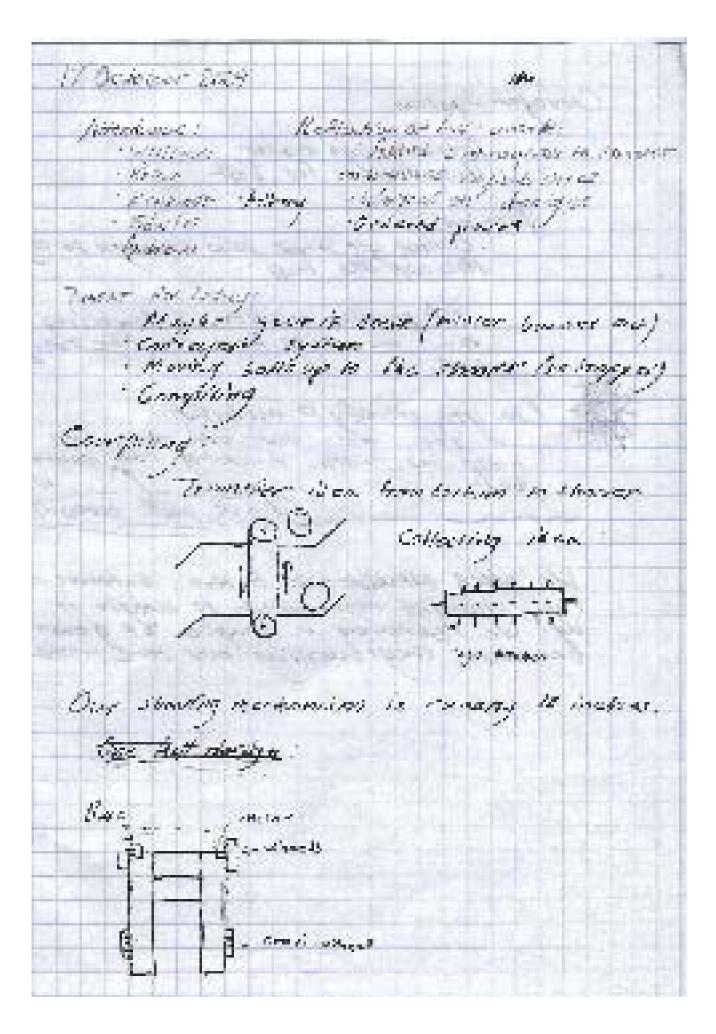


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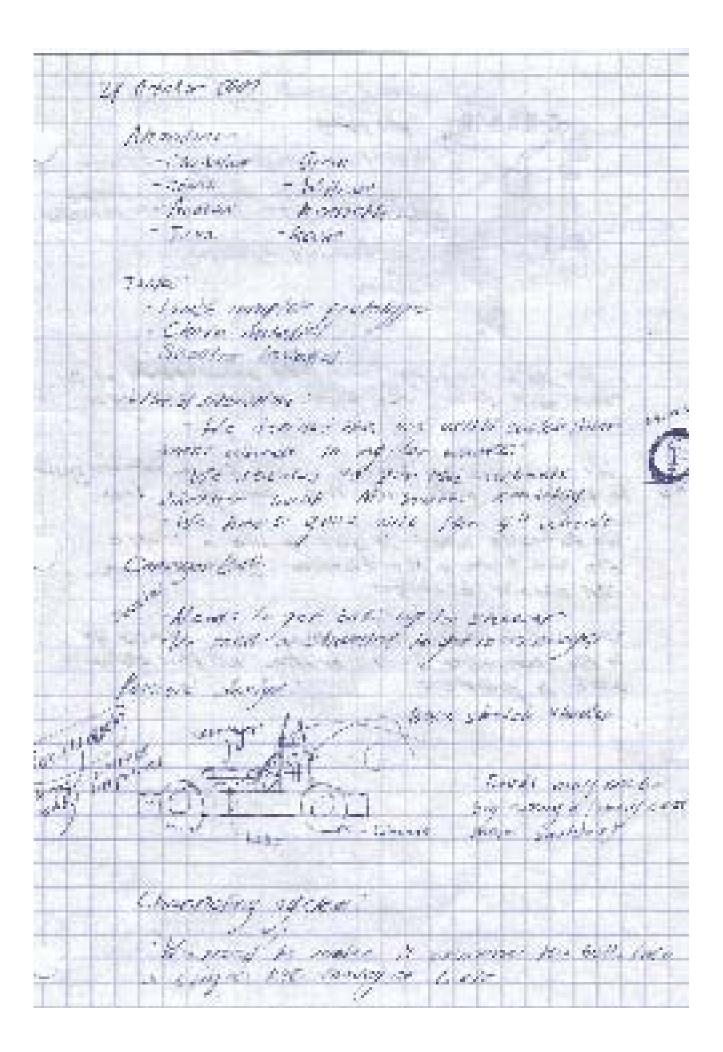
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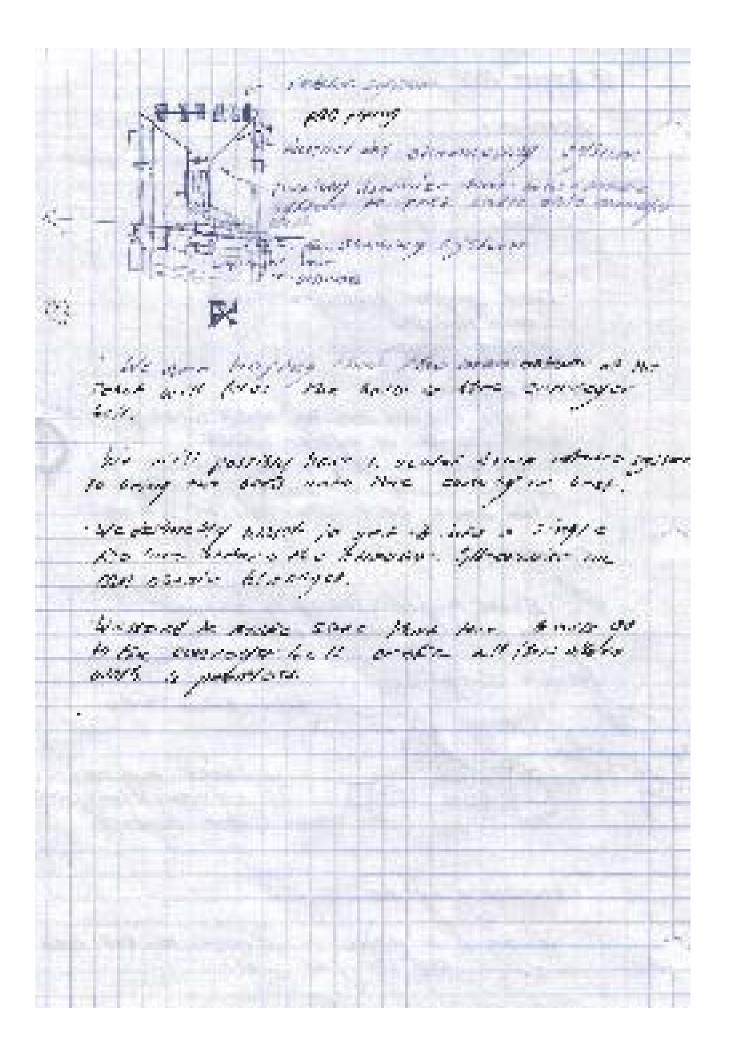


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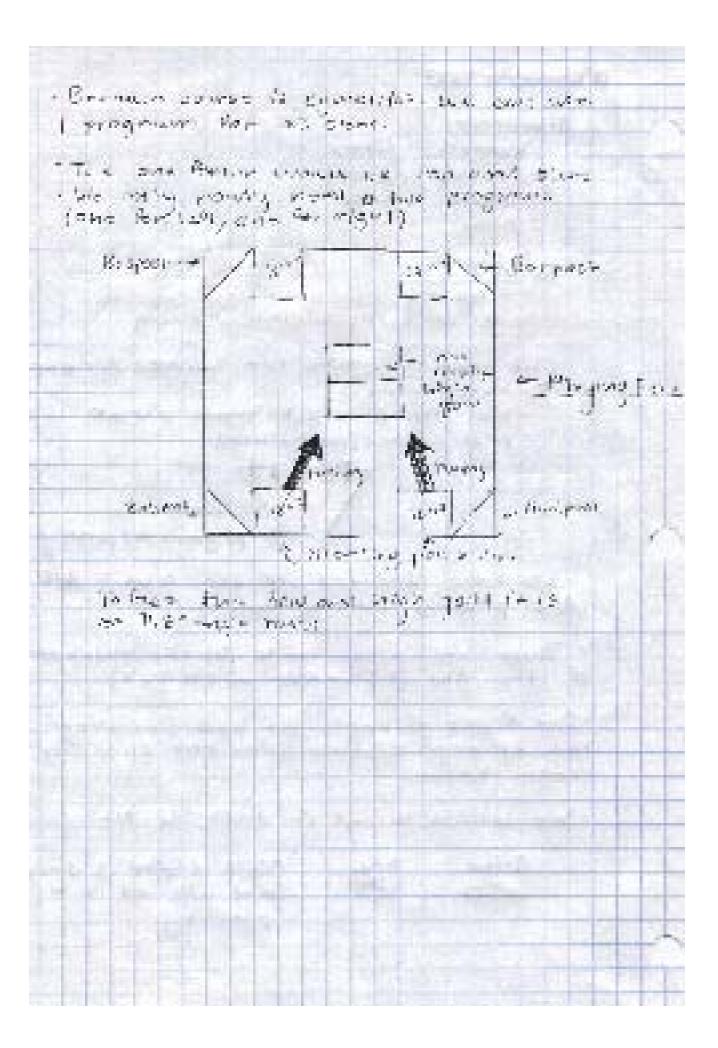
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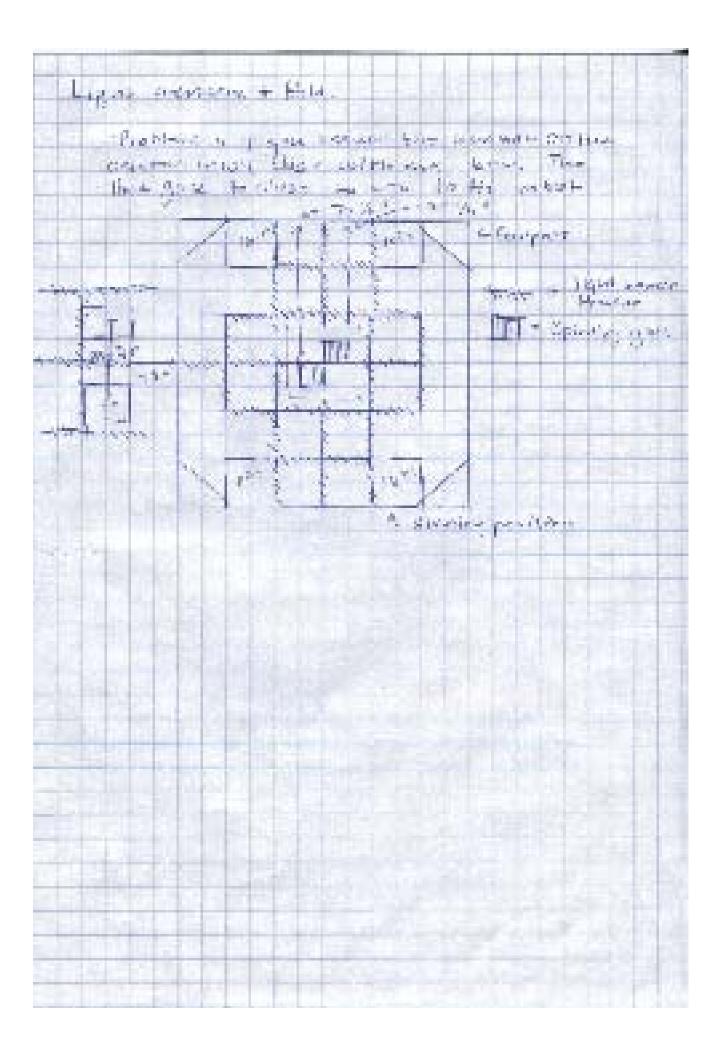
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