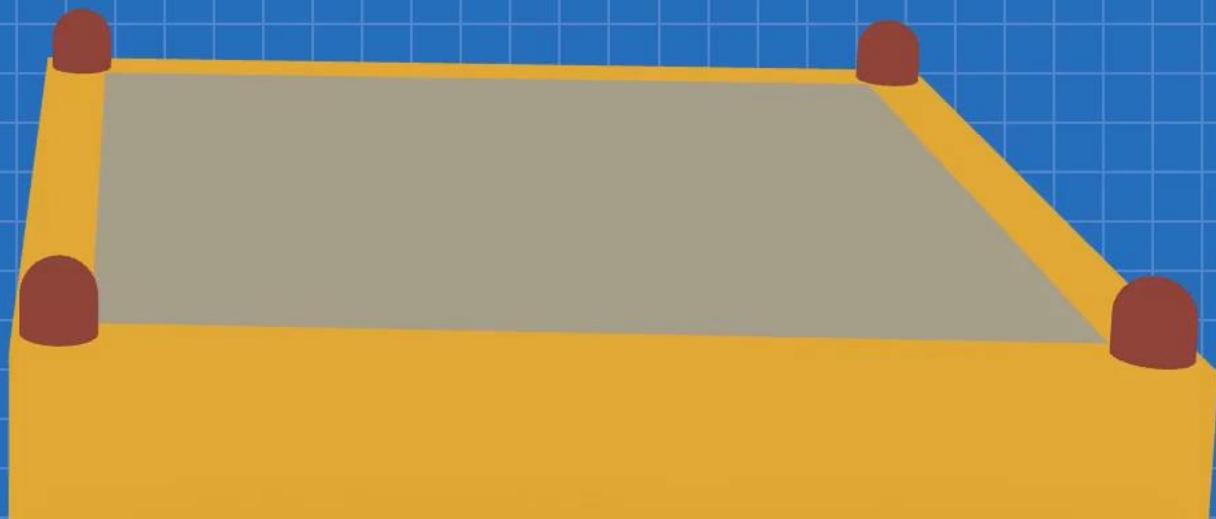


Science Buddies

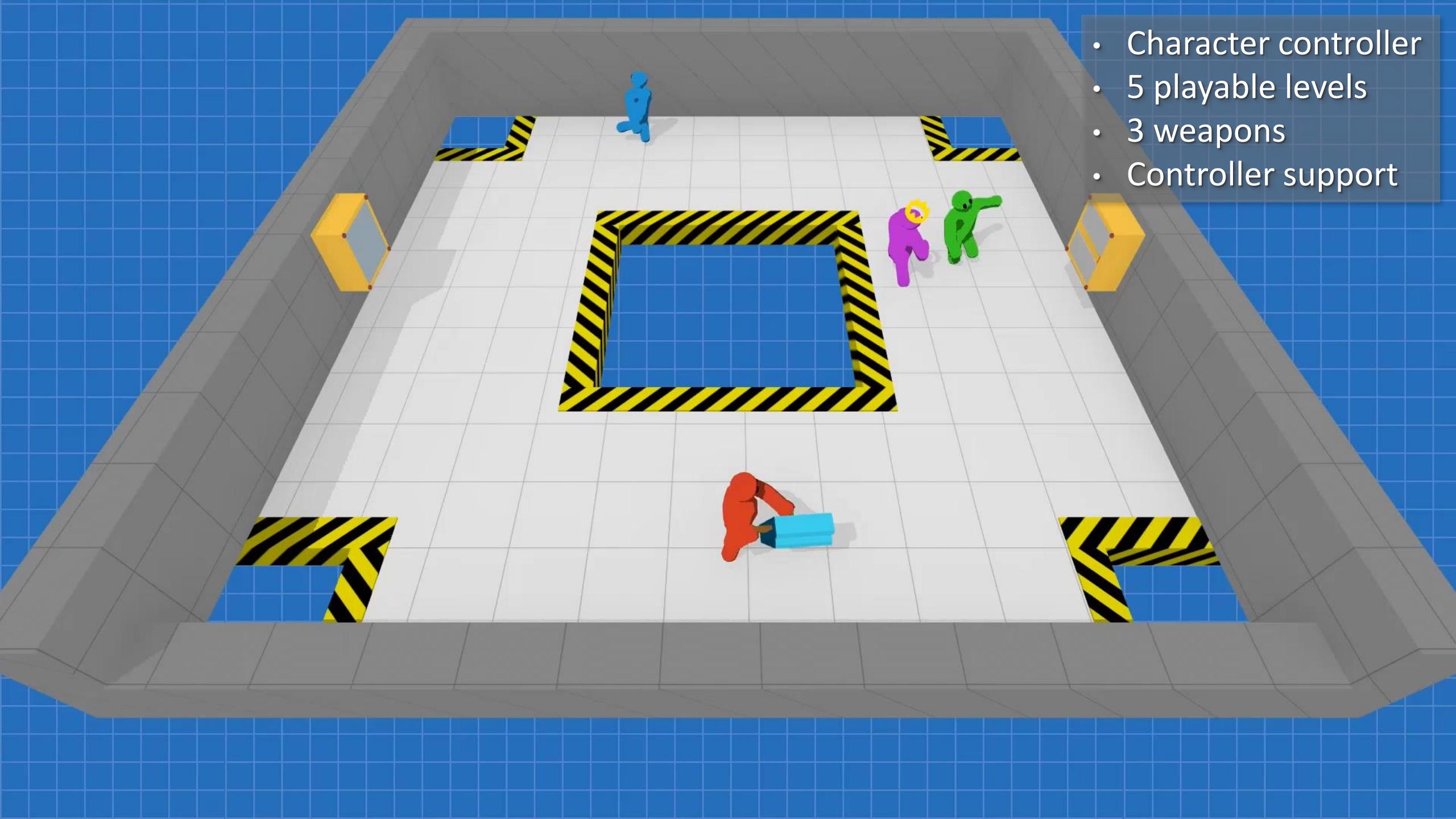
200lbs of Fish

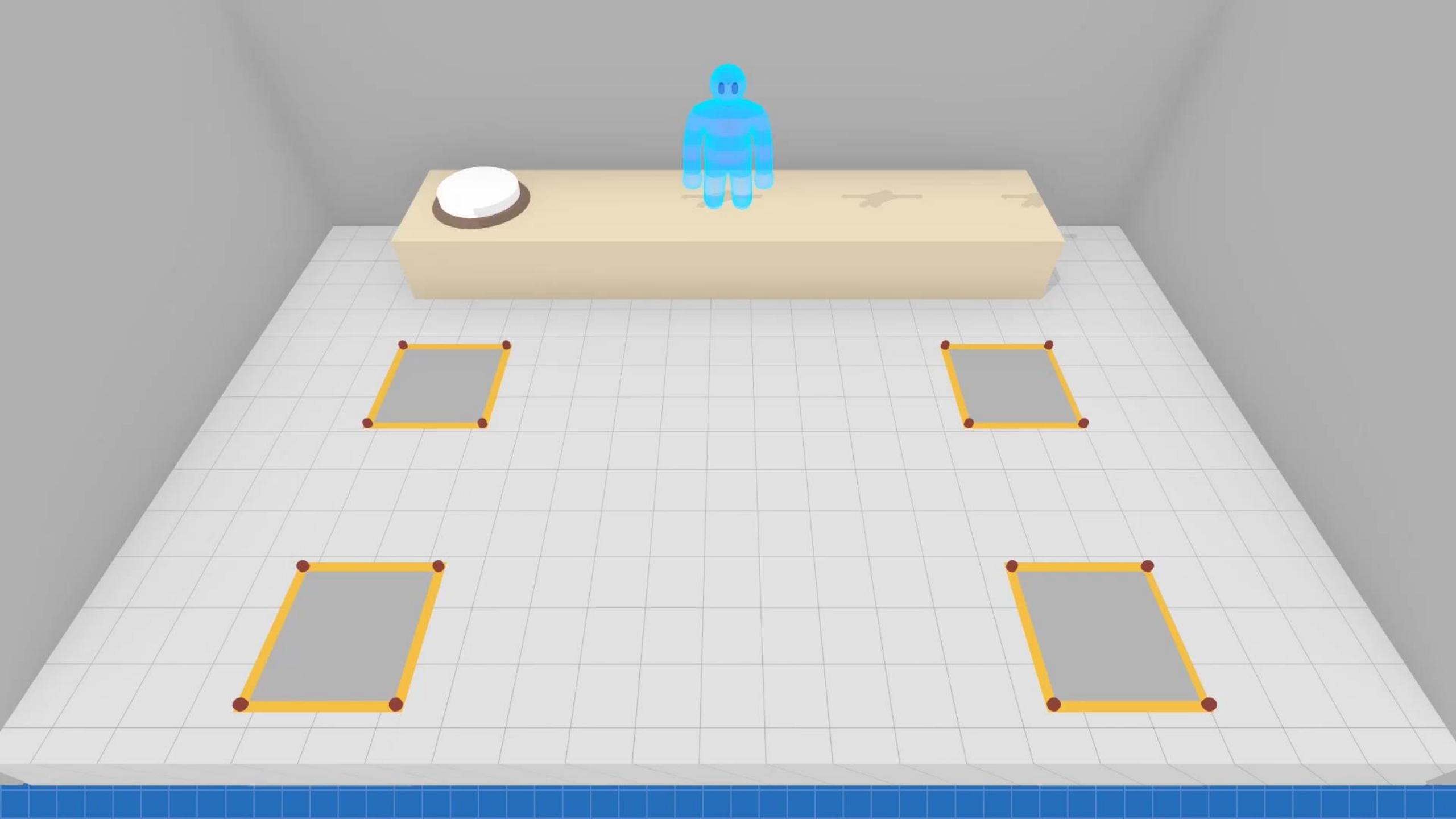
Science Buddies

- Wacky, multiplayer party game
- Physics-driven combat
- 2-4 player local PvP



- Character controller
- 5 playable levels
- 3 weapons
- Controller support





Visuals



Visuals

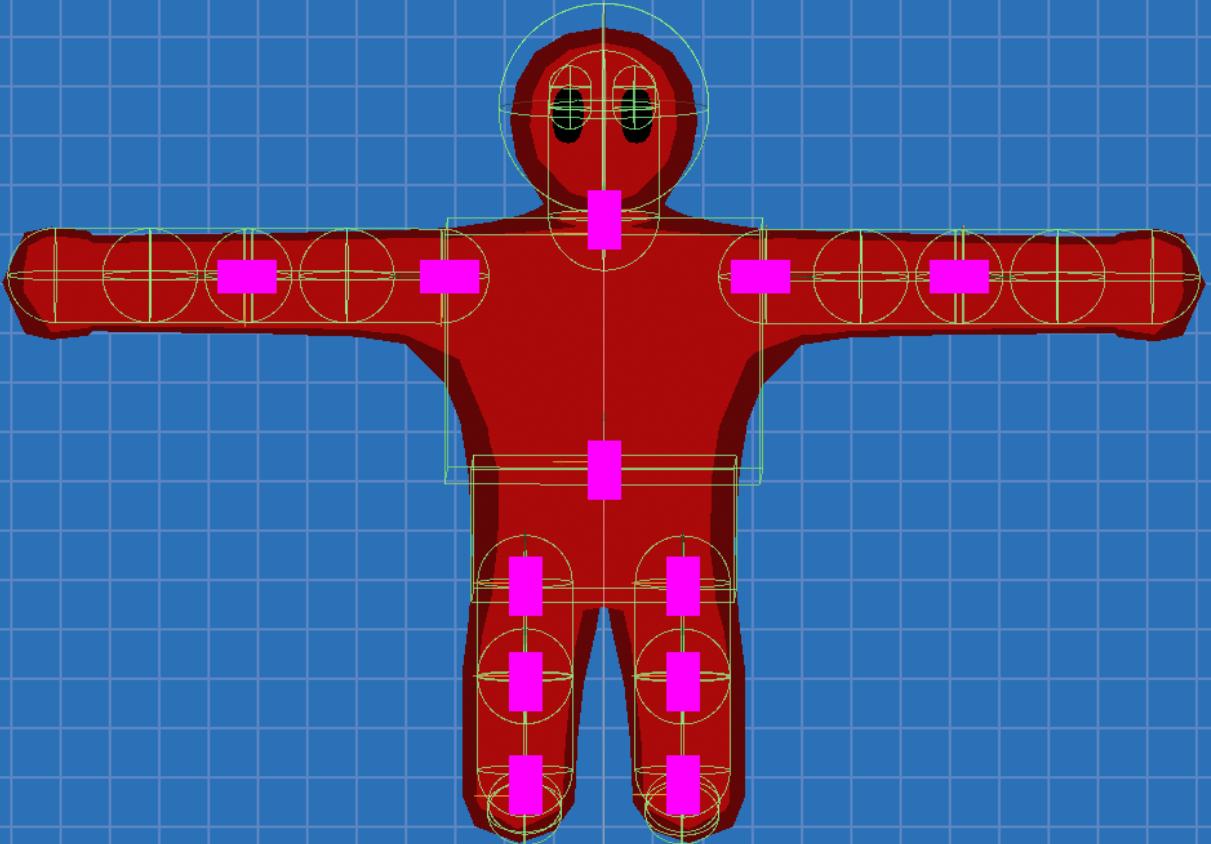


Visuals



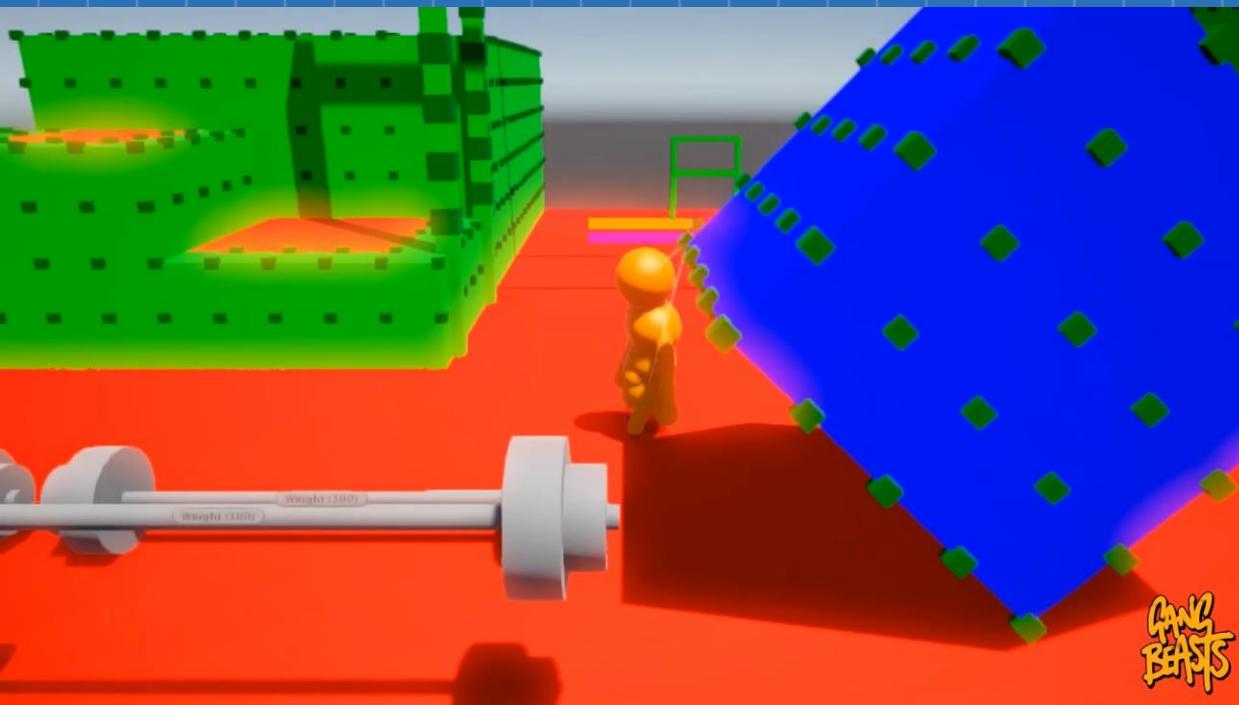
Character Rig

- Active Ragdolls
 - Ragdoll with forces applied to mimic musculoskeletal movement
- Series of Rigidbodies connected with ConfigurableJoints
- Zero-sum system (usually)
- Mixture of joint angle targeting and force application



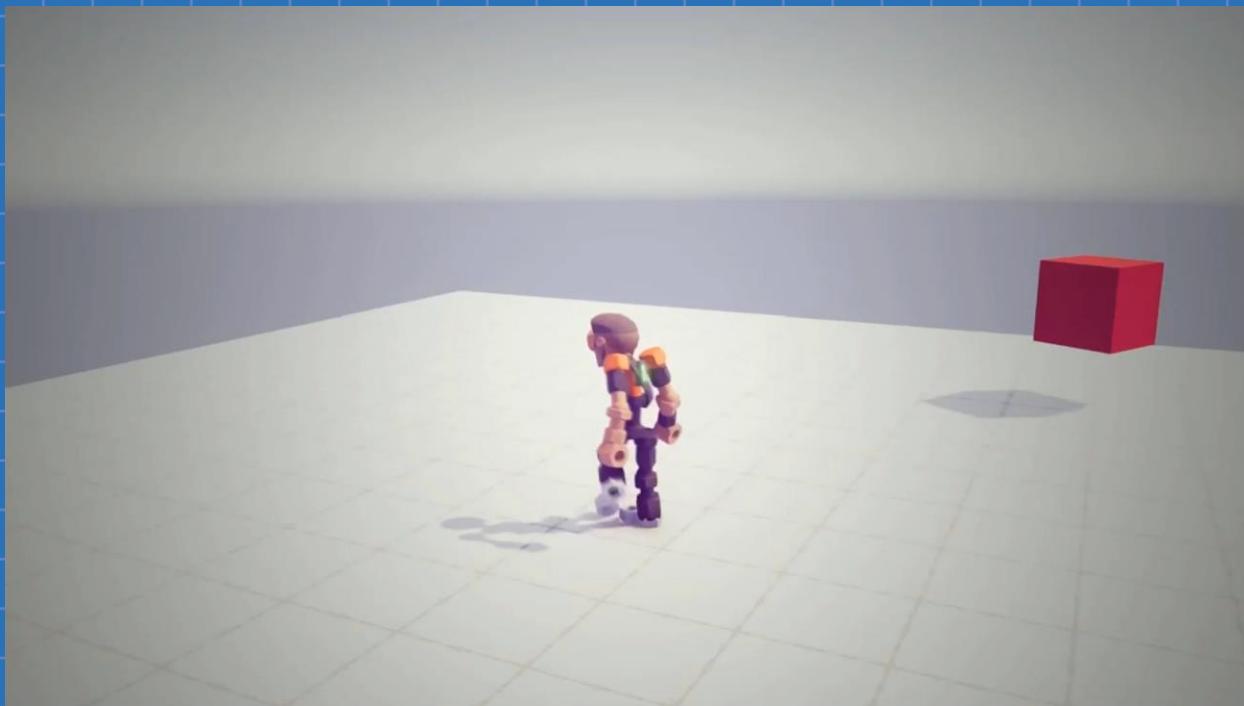
Balance – Gang Beasts

- Ball holding up character
- Forces applied to appendages to move them



Balance – MetallCore

- Mimics muscle contraction and relaxation
- Balances itself like a real human would



Balance – Science Buddies

- Based on Evan Greenwood's active ragdoll system
 - <https://twitter.com/CodeOfTheVoid>
- Hybrid of Gang Beasts and MetallCore
 - Force application to hold up character
 - Joint targeting for fine control over where appendages are
 - Force application on appendages for walking and punching

Controls

- Natural controls, experientially-accessible
- Actionable controls:
 - Punching
 - Jumping
 - Picking up/dropping/using items
- Give agency to players at *all* times
- What they tend to do
 - Punch
 - Grab weapons
 - Throw everything
 - Spin

Grabbing

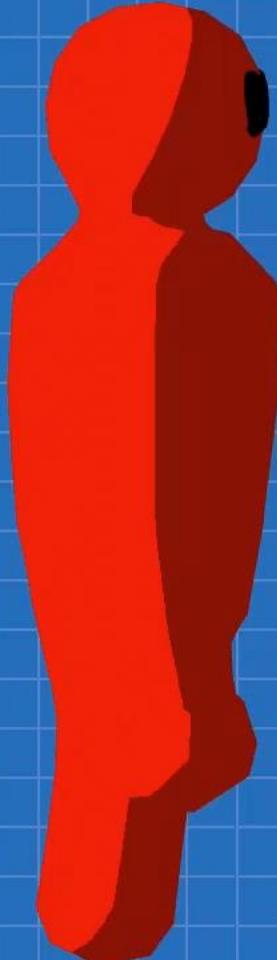


Grabbing



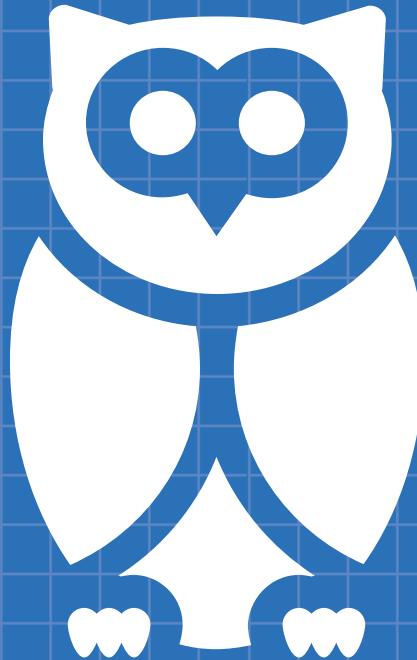
Punching

- Explored options
 - Slow, impactful punches
 - Faster, less powerful punches
 - Shove with high knockback
- Chose faster, less powerful punches
 - Fun to spam buttons
 - More responsive



Weapons

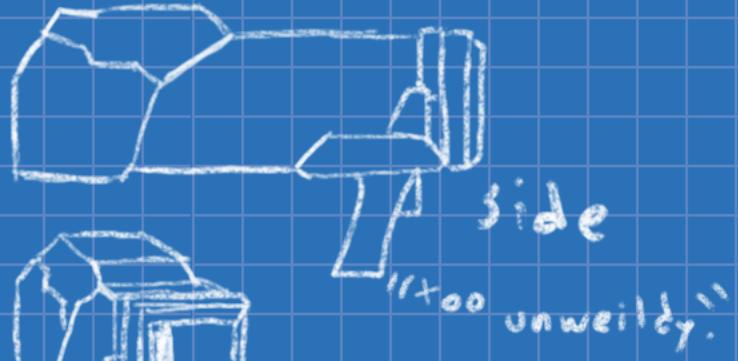
- Ranged Weapons
 - Rail Gun
 - Mini Gun
- Thrown Weapons
 - KABOOMerang
- Melee Weapons (planned)
 - Rocket Hammer
- Future weapons
 - More complexity



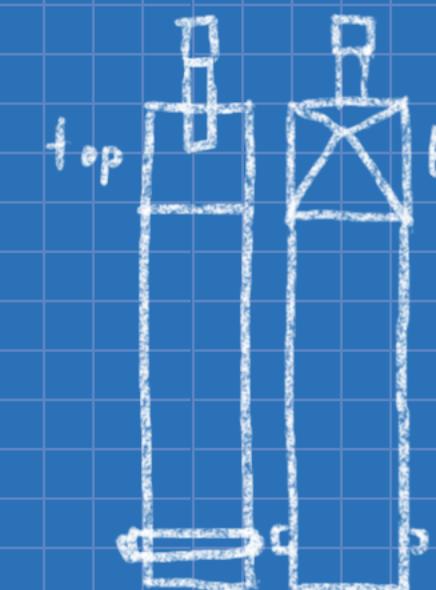
Put some static weapon images here

Prototype: "Railgun"

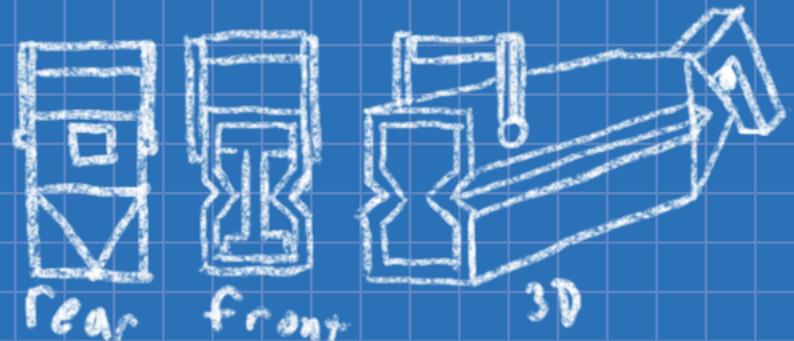
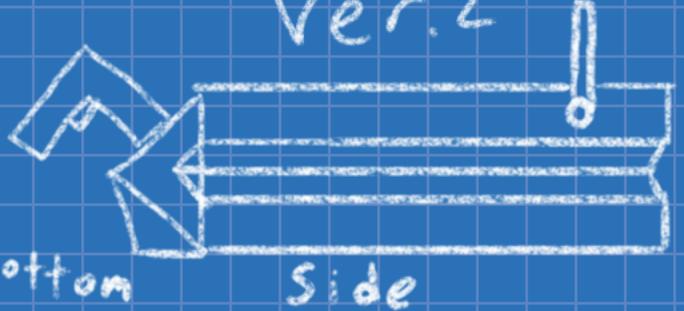
Ver.1



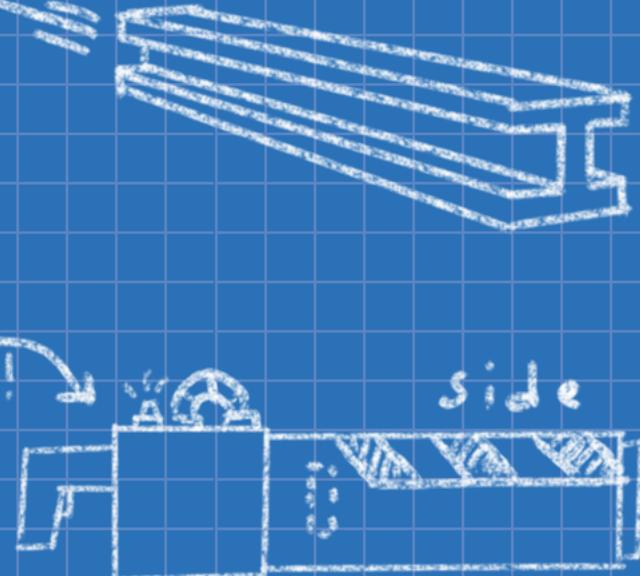
3D



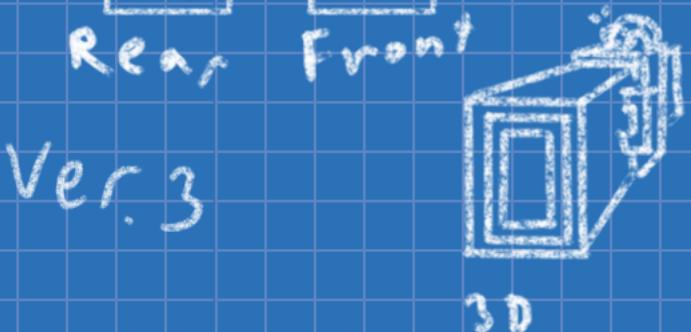
Ver.2



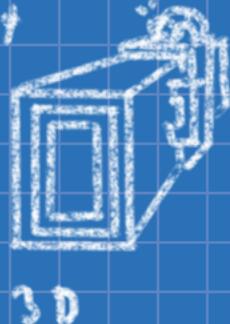
new
Rail
generator!



Rear Front

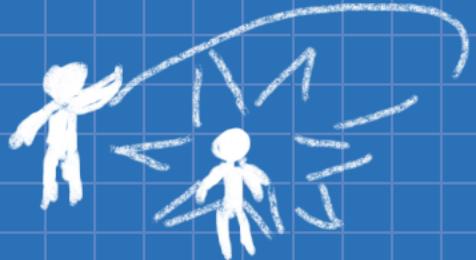


Ver.3

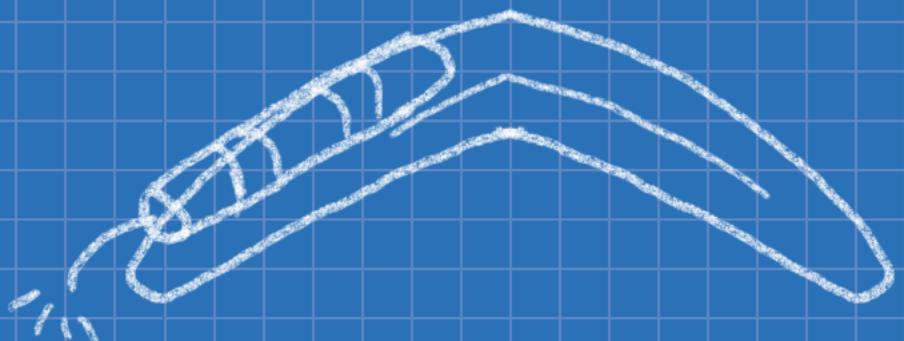


3D

Prototype "Kaboomerang"

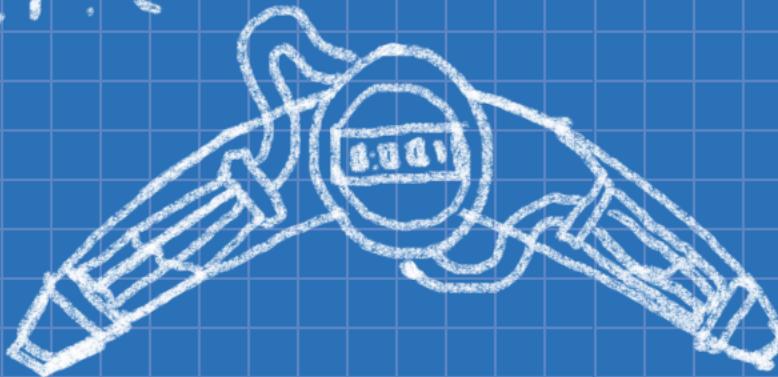


Ver. I.



light & ergonomic!

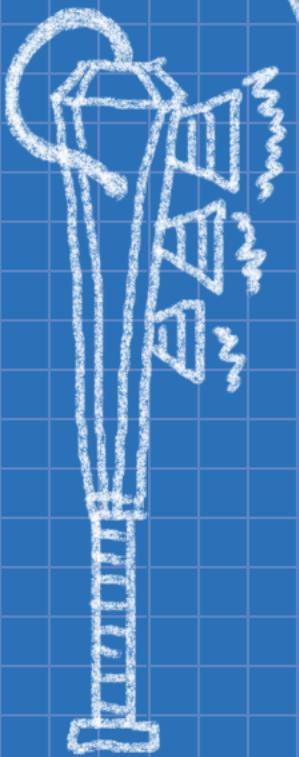
Ver. II



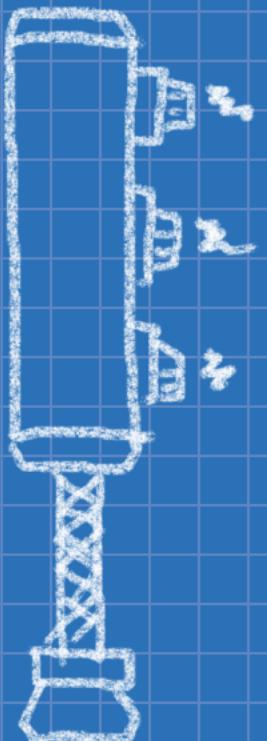
a bit overkill...

Prototype "Rocket...Bat...Hammer...Thing..."

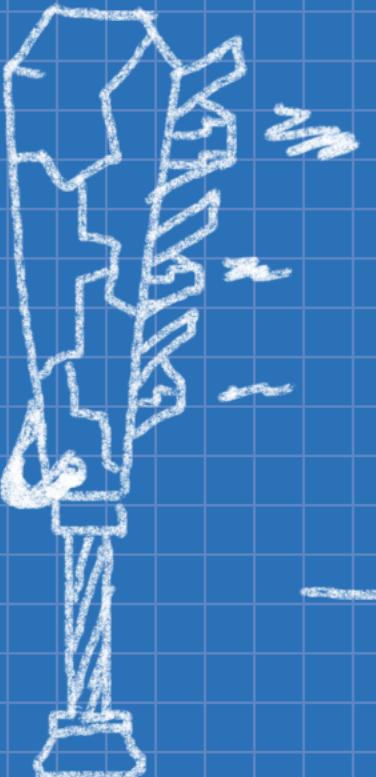
ver.1



ver.1



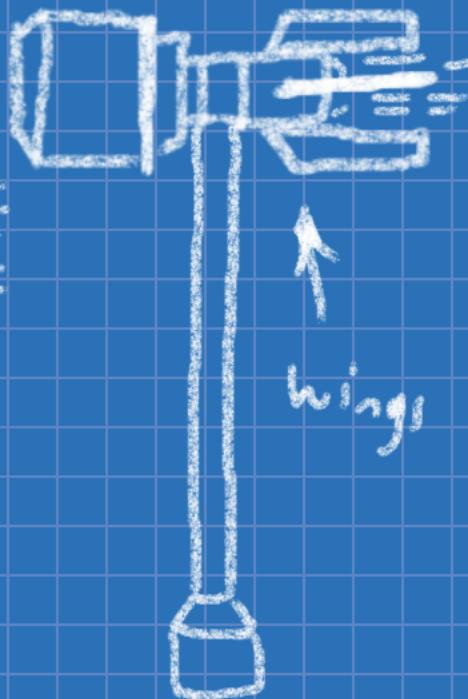
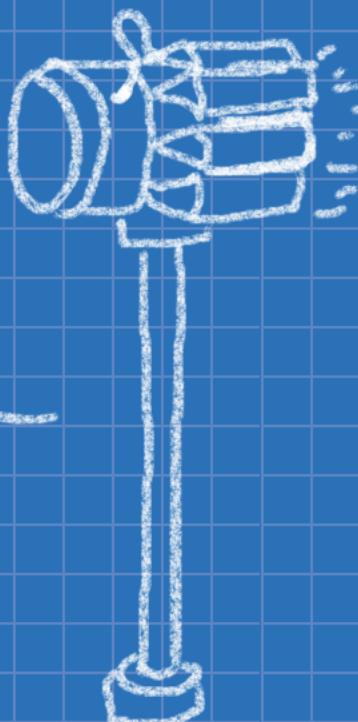
ver.3



"It's
hammer
time!"

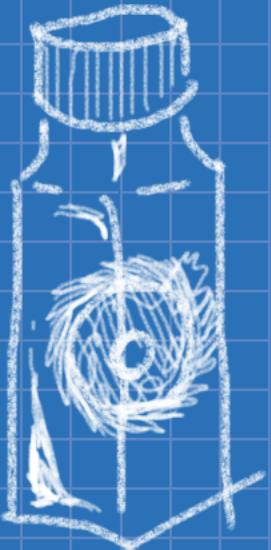


Ver.1

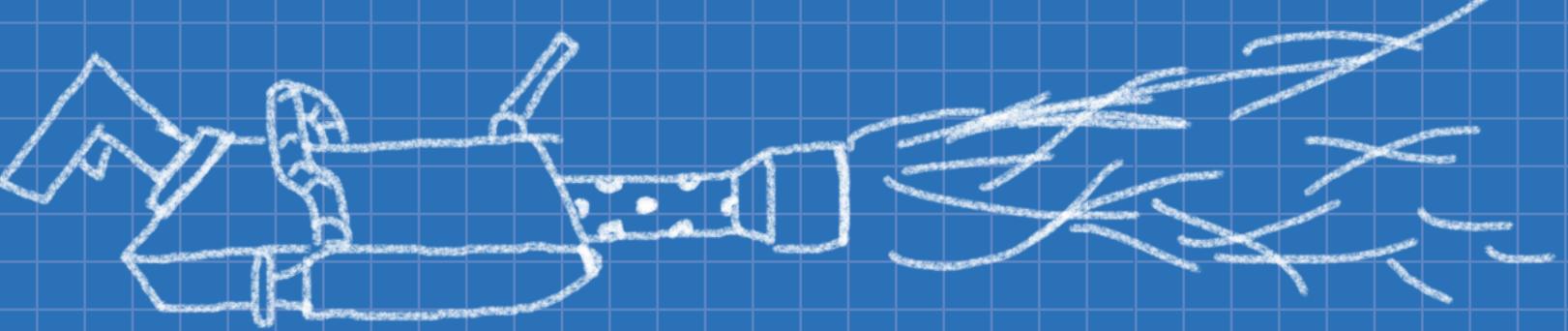


Ver. 2

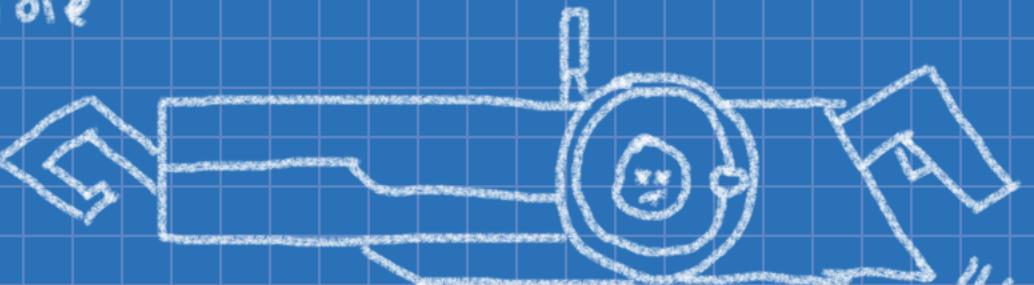
Other Stuffs...



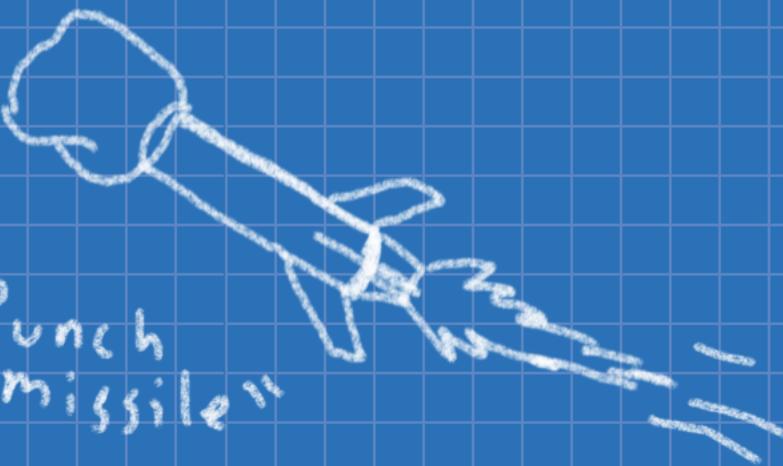
"bottled
black hole"



"just a
flamethrower"



"get-over-here
gun"



"Punch
missile"

Levels

- Short levels built around a focused mechanic
 - Too quick to learn (30 seconds to a minute)
 - Stage hazards were deadlier than other players
- Arena style levels including a focused mechanic
 - Shifts focus from stage hazards to PvP
 - Try to include player agency in stage hazards (buttons)
- Survival style levels
 - Shifts focus from PvP towards stage hazards

Processes

- GitHub – code reviews
- Task tracking
- Discord
 - Meeting planning
 - Idea iteration
 - Notifications
- Level creation process
- Interaction with artists
 - Multiple points of contact
 - Programmers paired with artists



Project Milestones

Prototype (Mid October)

- ▷ Groundwork laid for all major systems



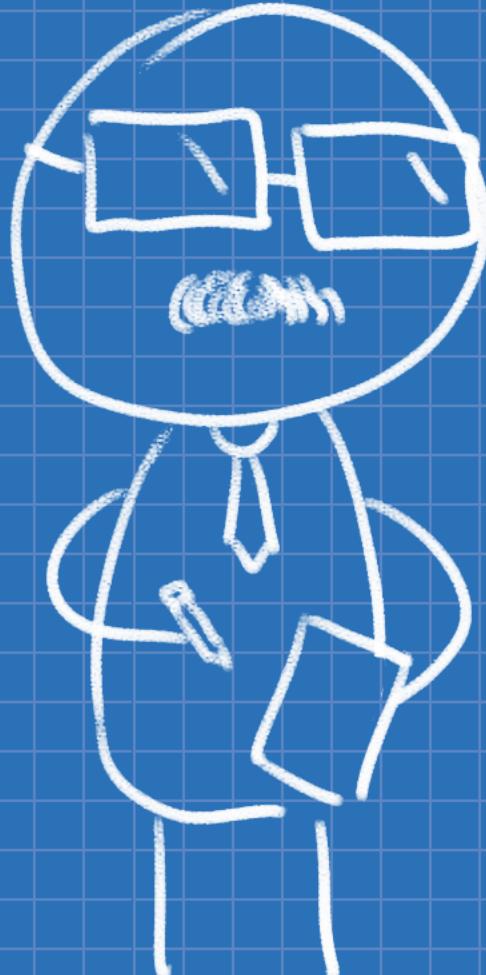
System Complete (Late November)

- ▷ All core gameplay features are in place and working as intended



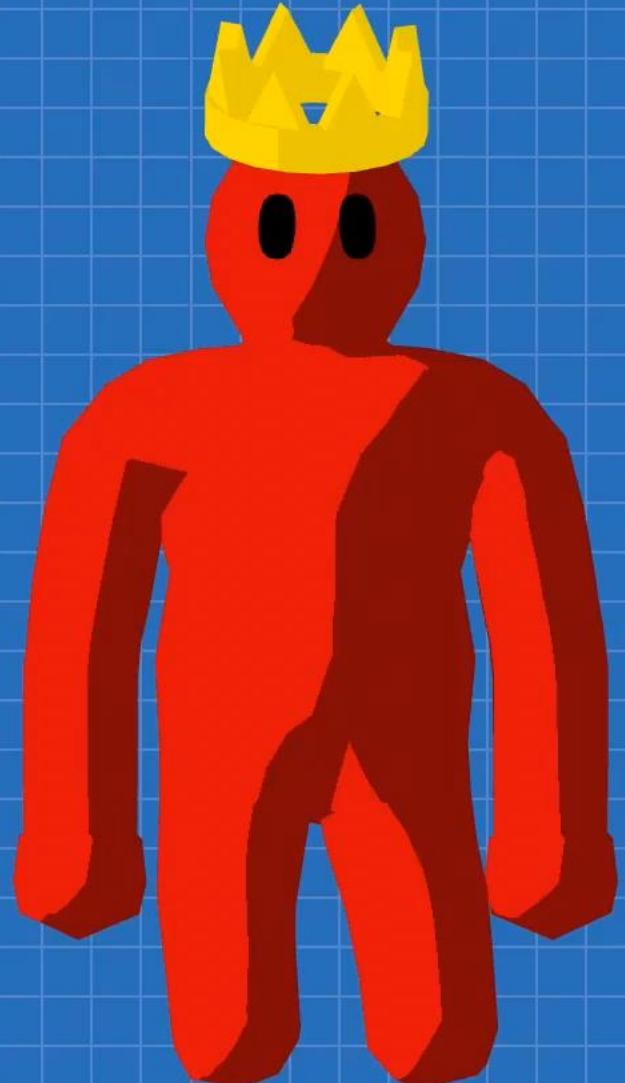
Feature Complete (End of Spring)

- ▷ Finished implementing all weapons and stages



Spring Timeline

- GDC Prep (*March 16, 2020*)
 - Minimum 10 polished levels
 - Menu system
 - Customizable characters
 - More weapons
 - Sounds & Music
 - Controller support
- Final Deliverable (*End of Semester*)
 - Minimum 15 polished levels
 - Design and research document
 - Steam store page



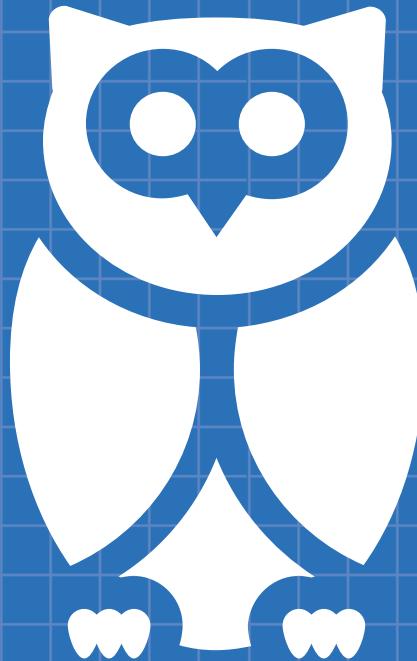
Research

Jared White

- In-game tools for metrics
- Metrics for engagement
- Gauging adjustments

Jeff Bauer

- Active Ragdolls (*previously discussed*)
- Player Rig
 - Improvements to walking
 - Consistent, powerful throws
- Different character rigs
 - Mechanical Rigs
 - Sheep
 - Tentacle Monster



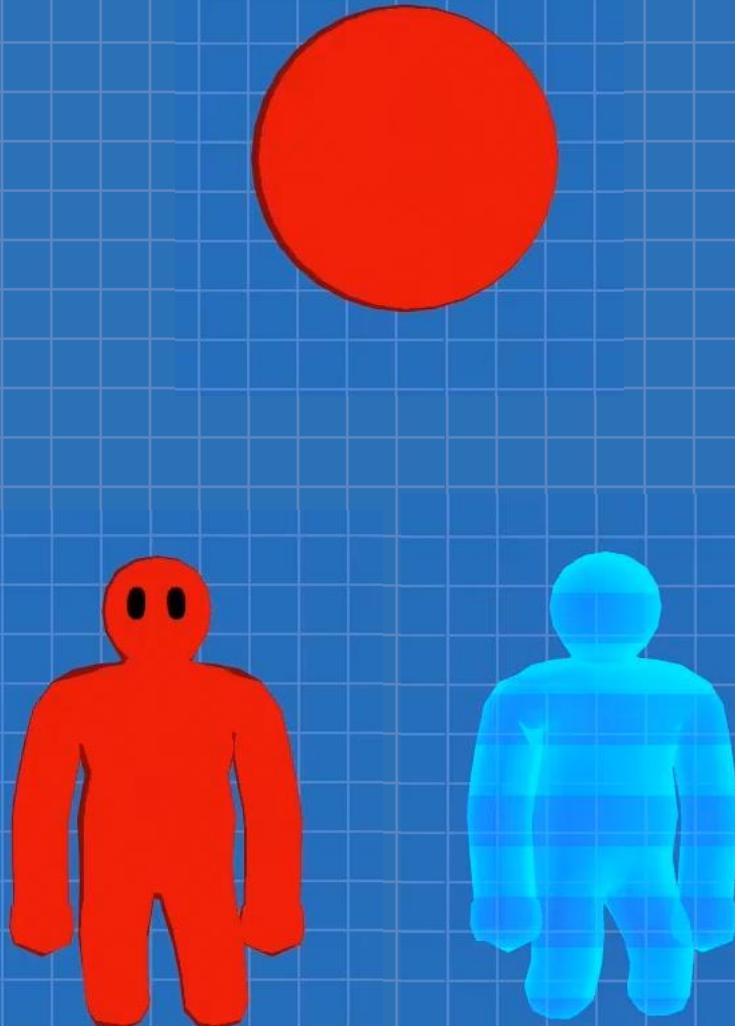
Insert image here

Mark Delfavero

- Random Elements
 - Random weapon/item spawns
 - Random obstacle spawning
 - Random events
 - Slight random variations in levels
- What level of impact is ideal for random mechanics in this game?
 - Randomness of weapon spawning?
 - Randomness of obstacles in the conveyor level?

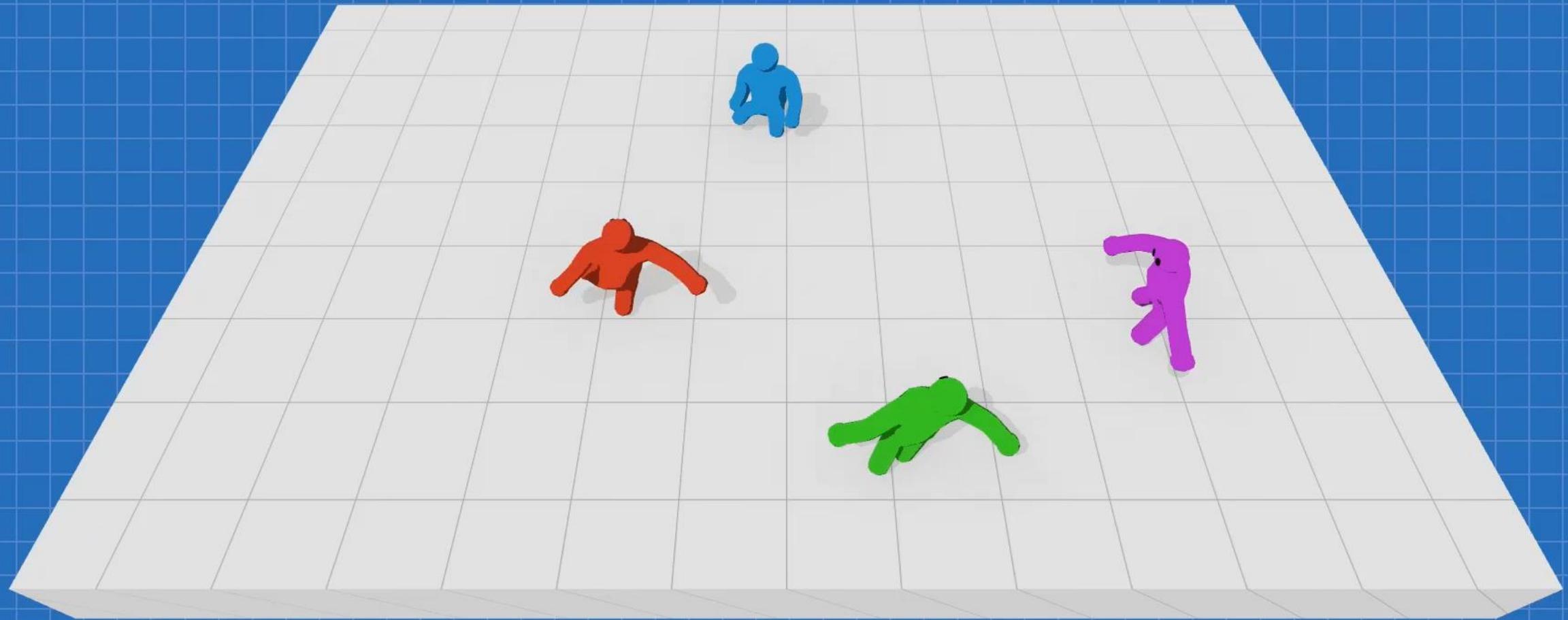
Victor Shu

- Toon Shading
- VFXs
 - Hologram
 - Particles



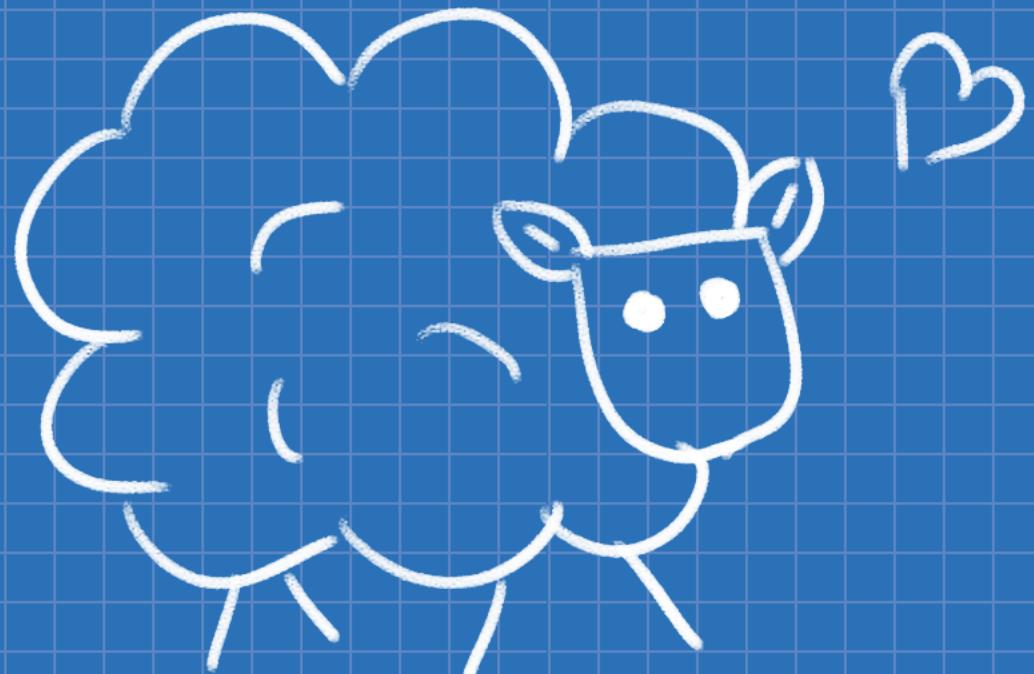
Thanks!

Follow development at: <https://www.200lbs.fish>



References

- Gang Beasts - <https://www.youtube.com/watch?v=PI5WCNxghWc>
- MetallCore - <https://www.youtube.com/watch?v=-50tcHNZsdg>
- Discord Icon - <https://www.axialis.com/>
- GitHub Icon - <https://twitter.com/abhishekpalva>
- Google Sheets Icon - <https://twitter.com/hopstarter>



The Team

Jeff Bauer

- ▷ Project Management, Gameplay Programming, Game Design

Jared White

- ▷ Gameplay Programming, Game Design

Victor Shu

- ▷ Gameplay Programming, Engine & Tools, Graphics

Mark DelFavero

- ▷ Gameplay Programming, Game Design