MANTICORE

DATA SHEET

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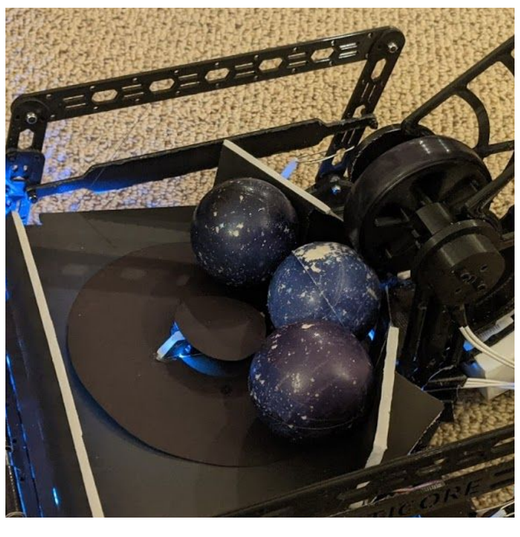
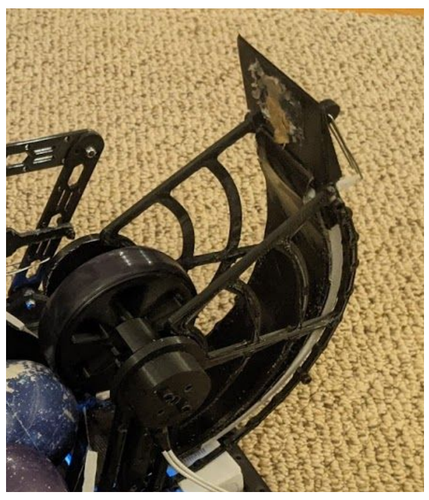
Hopper and Agitator

4 bar linkages actuated by metal gear 9g servos make up the hopper walls, while an internal foam board floor with a 'dumb spindexer' control the game pieces. The hopper is raised when the 4 bar linkages move into their rear position. This causes game pieces at the back of the hopper to make contact with the flywheel, funneling them into the launcher.



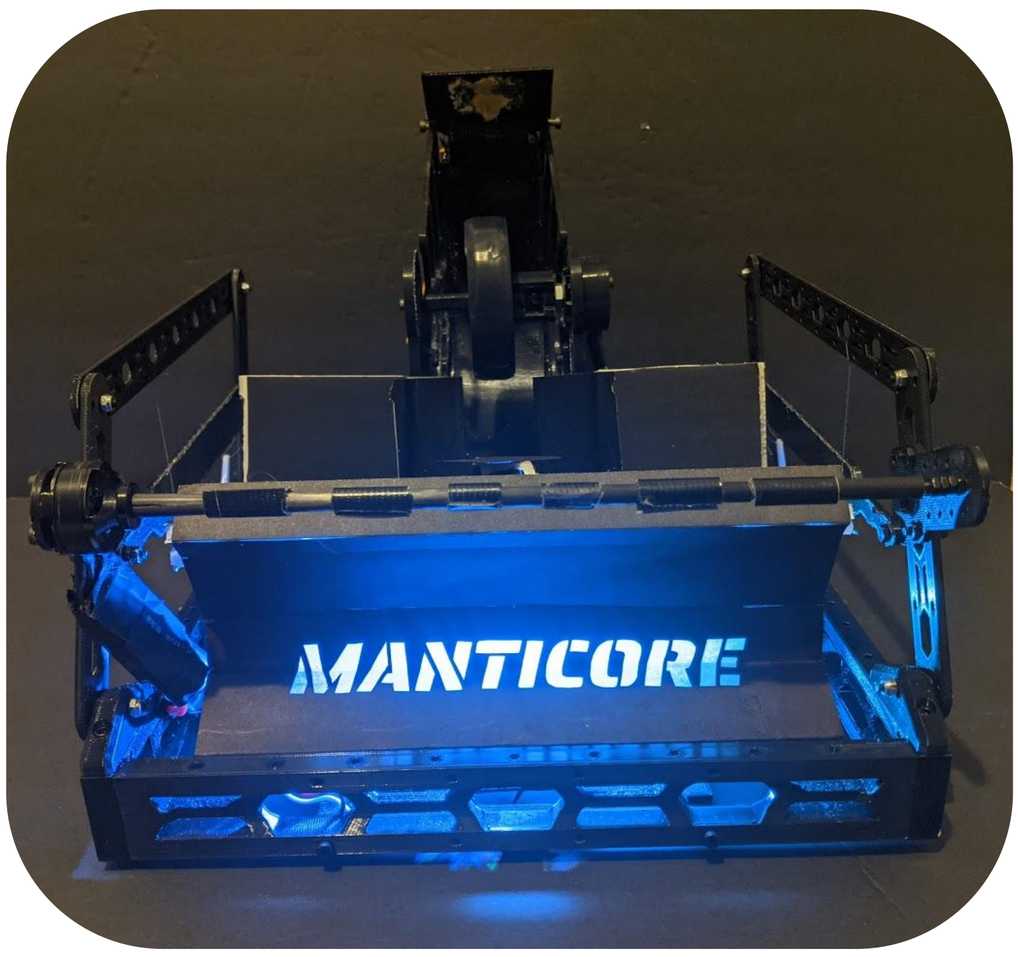
Launcher

Single flywheel launcher with swappable flywheel for different game piece sizes. The launcher walls can be moved in/out for these different sizes too. The power system is an single direct drive 2450 kv brushless motor. Theoretical top speed of over 20000 rpm, but tuned to around 2000 for accurate launching. Vectoring flap at the tip of the launcher allows firing from different angles.



Electricals

16V powerplant through 4s lithium polymer battery. Mateksys PDB and FrSky receiver for control, with BLheli 32 ESCs, brushless motors, and 9g servos for actuation. All control setup done in OpenTX through a Taranis QX7 radio.



Intake

Attached to the 4 bar linkages, the intake works when the linkages are in their forward position. Single carbon fiber spar taped for better friction, with direct drive to small brushless motor (~2000 kv).

Wheels

3D printed TPU traction wheels for multiple different surfaces, or 3D printed PLA/TPU omni wheels for holonomic drive. Omni wheels have individual rollers with wire axles that are hot-swappable for maintenance.

Chassis

Modular chassis comprised of 4 crossbeams and 2 main side beams. Gearboxes attach individually between or on crossbeams, allowing for 12 different gearbox mounting positions and 24 individual gearbox attachment points.

Gearboxes

2 3D printed parts make up the structure of the gearbox, one containing a motor housing for a size 2306 brushless motor. M3 bolts and bearings act as shafts to attach gears that perform a 60:1 reduction. The gearboxes are modular and can be mounted in various locations on the frame.