Team 11
I Choose You

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Status Update

- We are doing a moving Pokeball that throws AR code

- New exterior cut will be done soon

- Got code for linear actuator working

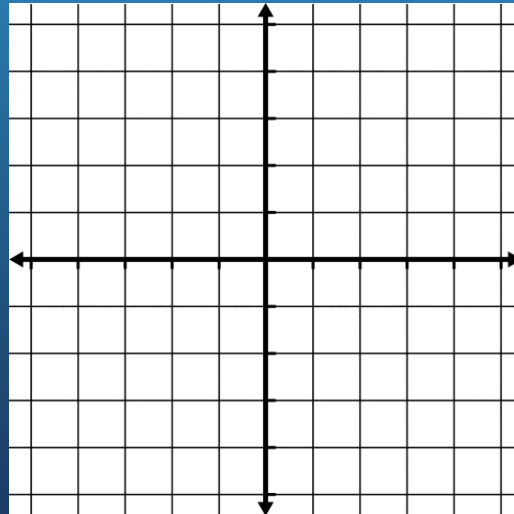- Start implementing code for Dead-Reckoning

Coverage Test

Test Item	Test Objective
Open	The hinges and layers shall be stable when opening the ball and loading Frisbees.
Movement	Motors and wheels shall work properly when codes are executed
IMU	IMU shall be reading accelerations, quaternions, Euler angles all the time
Reorient	The ball shall be recognize the side facing user under any light and previous orientation condition (the bottom side as indicator).
Frisbee	The Frisbee shall kick the AR code out of the ball once the ball is completely opened
Close	The hinges and layers shall be stable when reloading Frisbee and closing the ball

Functional Test

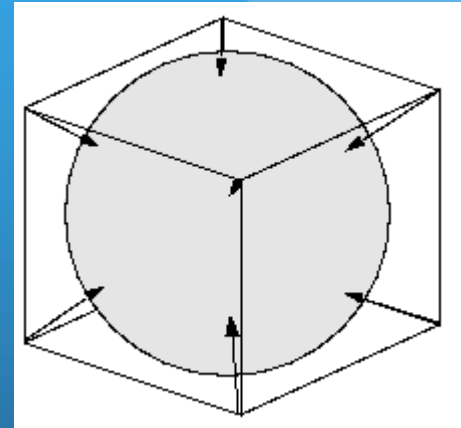| Test Item	Test Objective
Exterior strength	Survive after rounds of reasonable torture
IMU + Movement	Move and reorient on flat ground
IMU + Movement + Up/Down Hills	Move and stop smoothly on hills; Be able to reorient even if the final state is unstable
IMU + Movement + Pickup	Be able to move and reorient if anyone pick and replaces the ball (new destination assigned)
IMU + Movement + Barricade (On Hold)	Be able to readjust path and reorient if detects barricades on flat ground

IMU Accuracy Test

- Execute code to move the ball on grid map

- Record error in distance and angle

- Calculate mean and standard deviation

Reorient Test

- Weight always on bottom

- Reorient when the ball is stable

- Reorient when the ball is moving
  - ❑ 6 direction cases – like cube

- Reorient in dark room / sunny day

Concern

- Long boot time – 20s

- Interrupt button may not be feasible

- Momentum calculation when accelerating, especially on hills