

Driver Controls

Basic Rules

These aren't absolute rules but you should really think about it when you break them. When in doubt listen to the driver's preference.

1. The driver shouldn't be doing more than driving and aligning the robot. Adding more mental load makes it so that the driver cannot focus as much on avoiding collisions and getting the robot around quickly.
2. The Driver should have a camera that allows for good visibility when picking up game objects (Fisheye cameras are really good here)
3. Make boolean conditions--things like is there a game piece in the robot-- a large box that turns green when it is ready or better yet use leds on the robot.
4. If using tankdrive don't use arcade drive, use curvature drive. Curvature drive behaves much better while turning, arcade drive frequently causes oversteer and overall poor handling.
5. If the driver does need to control something other than the drivetrain make their controls simple.
 1. If the system makes sense to toggle(eg. deploying an intake) have one button that sends it out and then retracts it. when released.
 2. If the system needs precise manual control, rethink the driver doing it.
 3. a command that does something until some goal state is reached should only execute while a button is held. For example, an alignment command should terminate when the robot is aligned or when the driver lets go of the button.
6. If you need more than one camera use a raspberry pi with the WPILIB image and use network tables or equivalent.(it is possible to do this many ways so keep the idea in mind.)

Not necessarily programming but still good to consider

1. Use alignment indicators on the robot as much as possible. For example 2 pieces of orange tape on an elevator or climber can indicate when the robot is in climbing position.
 2. Place the camera in a good spot with clear visibility of the intake of the robot.
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