

Programming Update

7 April 2016

Team 3925 – Circuit of Life

Hardware

General

- Intake Assist Arms have also been removed

Drivetrain

- Drivetrain encoders are NOT mounted
- Each side's dual motors appear to be functioning correctly and driving in the correct direction

Launcher

- The launcher motors for the flywheels have been removed. Because of this, our robot is currently unable to interact with the ball.

Planned Features & Requests

- Currently working on new intake assist arm design [4/14/2016]
- Currently redesigning the launcher [4/16/2016]
- *Request to add drivetrain encoders for Autonomous [4/11/2016]*
- *Request to add Plan A shooting device for launcher [4/12/2016]*
 - *Uses two different colored lights in order to create a failsafe aiming mechanism*

Code

General

- Removed all vision processing code and references of pixy camera because of possible instability
- Helper classes for user input have been partially debugged and tested. They are now responsible for getting all user input.
 - Ports have been changed for controllers
 - Port 0 (top slot) = driver flightstick
 - Port 1 (center slot) = driver wheel
 - Port 2 (bottom slot) = shooter xbox
- “The Jank Was Dank Enough” button has been created

Code Cleanup (By Dylan Hart and Bryan)

- *See GitHub for the actual lines of code that have been modified, removed or added*
- Removed most unnecessary commented out code
- Proofread launcher code, removed some unneeded components
 - Enable Aim Motor boolean still needs to be removed
 - Replaced Limit PID Controller with standard Synchronous PID Controller
 - Reason: Limits were set far beyond operating range, was unnecessarily complex implementation
- Drivetrain contains two copies of the subsystem component Drive Side
 - Drive Side simplifies modifications made to the drivetrain
- Removed all unused commands and classes
- Created Human Input Device helper classes
- GyroDrive now accepts more parameters
 - Can accept distance (does not work due to non-existent encoder input)
 - Also accepts time to drive and power to pass to motors
- Addition of small command that maintains intake assist arms at certain position (Up or Down)
- Manual Command that runs the Intake Assist arms
- Intake Assist now runs on update ticks
 - New implementation that uses enumeration class to operate state machine.
- Added new interface Loopable
 - Loopable requires an implementation of an update() method
- Improved ThrowBall command
 - Cleaned up state machine

- Added Timeout after punching ball in order to ensure the ball has left the launcher mechanism.

Autonomous

- GyroDrive (command that drives the robot straight) is working as expected
 - Robot is maintaining heading during the duration of the command

Drivetrain

- Drivetrain fully functional
 - Robot is able to drive forward and back using flightstick
 - Robot is able to be turned using steering wheel
- Unsure of drivetrain encoder inputs – does not use as framework for any of driving commands (except one unused implementation of GyroDrive)

Launcher

- Launcher is able to be reach a specified angle within 2 seconds
- Due to the removal of flywheel motors, the code is unable to manipulate them
 - Currently we are unable to collect balls or shoot low or high goals.
- Puncher solenoid is functioning as programmed

Planned Features & Requests

- *Request to add drivetrain encoders for Autonomous [4/11/2016]*
- *Request to add ultrasonic sensor in launcher to detect ball [4/12/2016]*
- **Vision.** (Adam is testing camera and implementation) [4/22/2016]
- TBD: Limit switch on Launcher in order to ensure more reliable input [4/12/2016]
- Planned: Integrate limit switch into launching routine [4/15/2016]