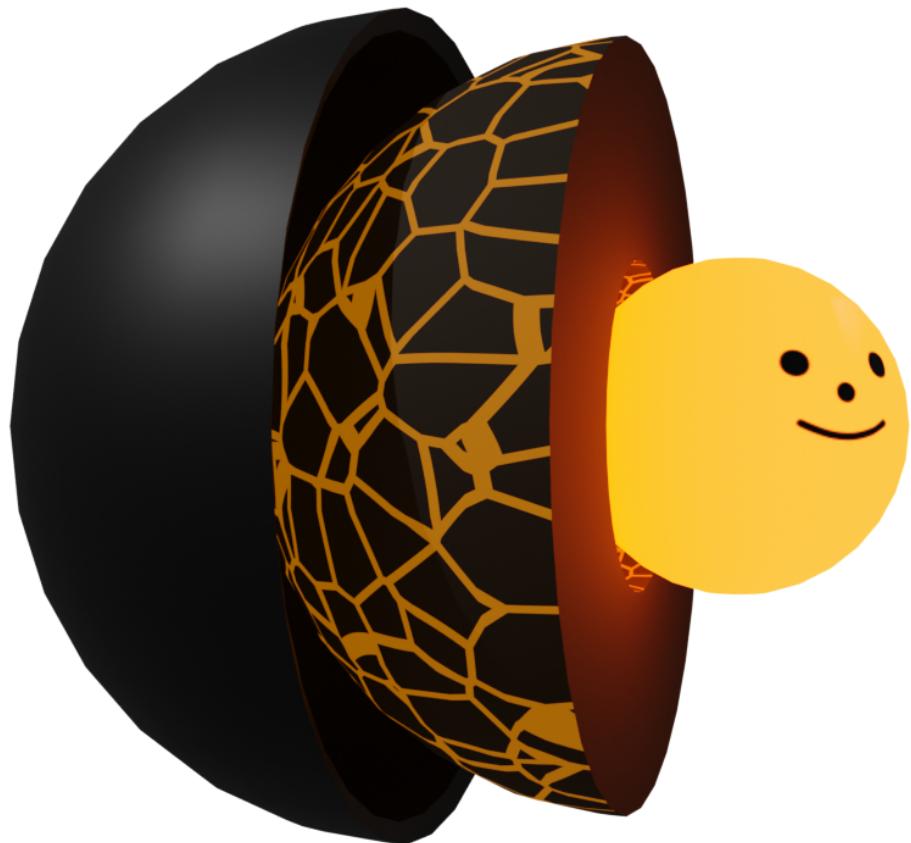


RIT VEXU Software Engineering Notebook

2023-2024

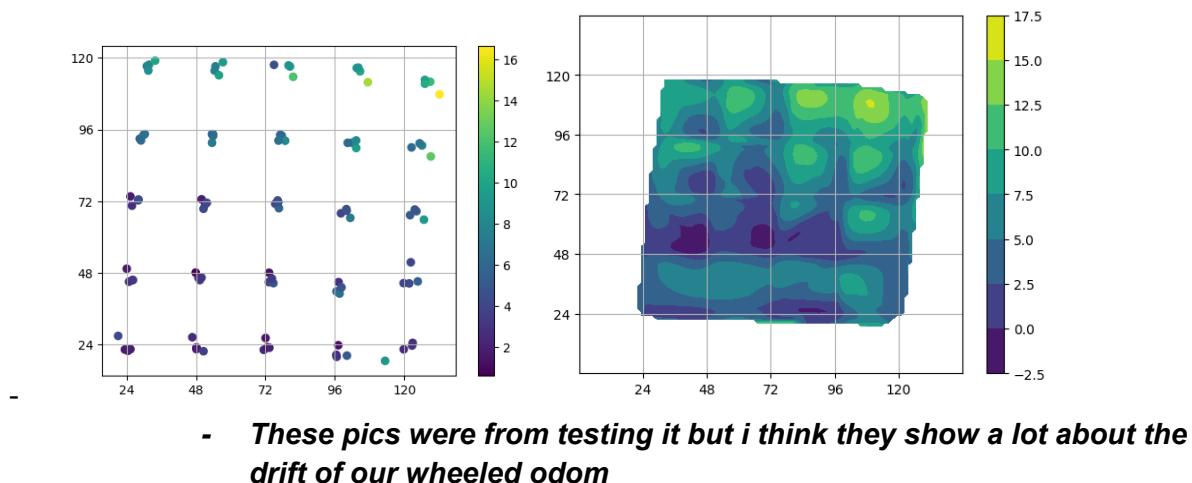
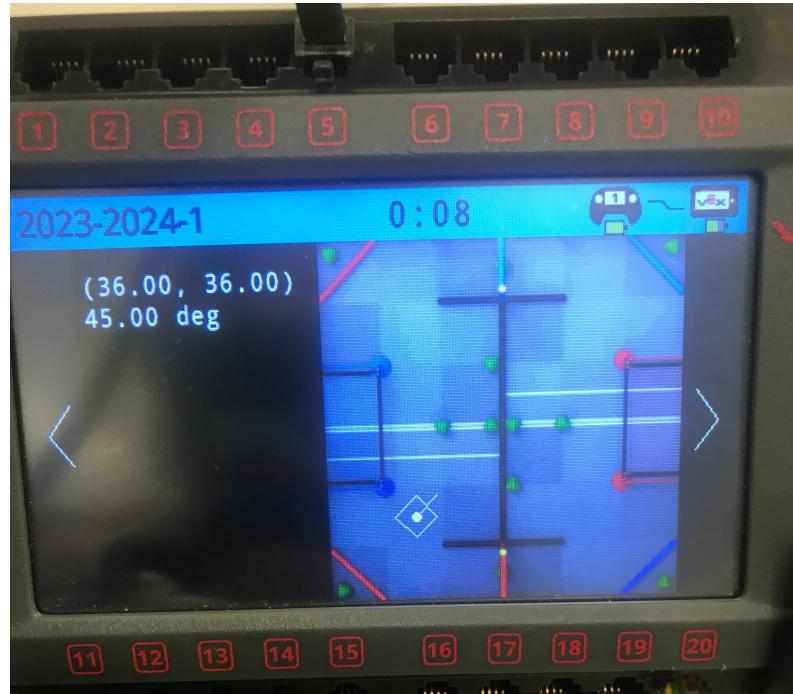


Software Development Process

- Subrepo - why we use it, why tried to switch to submdules, and why we switched back
- Auto Documentation Creator
- Auto Notebook Creator
- Clang-tidy

Core: Updates This Season

- Biggerer and betterer screen system
 - Buttons and sliders enabling hardware to test speeds without a coder redeploying every 5 seconds
 - PID, PIDFF tuners
 - Odometry Map
- Motor stats
- Auto chooser
- Cata State Representation for debugging, tuning
- GPS testing (with all the pretty plots (hell yeah))
- Using GPS to tune odometry



- GPS odom
- Cata system state machine
 - Message passing parallelism 😎
- Brake mode stuff
- Pure pursuit
- Autocommand upgrades
 - What it was at start of season

```

● ● ●
1 void do_auto(){
2     CommandController cc;
3
4     AutoCommand *go_way_1 = new InOrder{
5         DriveToPoint(0, 0),
6         Shoot(),
7     };
8
9     AutoCommand *go_way_2 = new InOrder{
10        DriveToPoint(100, 0),
11        Shoot(),
12    };
13
14
15     cc.add(new InOrder{
16         new SetOdom({0, 0, 90}),
17         new DriveForward(10),
18         new TurnDegrees(90),
19
20         // Do two things at once
21         new AllFinish({
22             DriveForward(10),
23             InOrder{
24                 Delay(100),
25                 IntakeUp(),
26             },
27         }),
28
29         // Choose path wisely
30         new Branch({go_way_1, go_way_2}, [](){
31             return random()%2;
32         }),
33
34         // go back to same path
35         new DriveToPoint(50, 0),
36         new DoSomething(),
37
38     });
39 }
40
41 }
42
43

```

- Memory safety
- Explicit duplication to avoid incorrect state copying
- Syntax niceties
- Failed experiments in IMU fusion odom?
- Motion controller coolerness
-

Core: Ongoing Projects

- N pod odom
- Core-rs - big things cooking
 - Bridge layer if theres anything interesting to say about it
- Vex debug board if we get it working
- vexsim?

Core: The Funny

Only maybe, this is not professional or something

- 3d renderer
- Video player
- Nes Emulator (did outreach with this cuz a middle schooler was a big fan)