Code

AutoGuide

Let's start off the bat, you need to create an **AUTO** really quick and understand how to modify it. The code examples and declarations will be provided in **JAVA**. Also let's assume that your whole robot code is within **ONE FILE**. But before we start, make sure all the includes are correct and included in the code. (Errors might pop-up, but don't panic, it's pretty easy to fix)

Motors

Want to control variables easily in one designated area without digging into the code?

[announce at the top] **double LAUNCHER_SPEED = 0.5;**
[announce at the top] **double DRIVE_SPEED = 0.5;**
[announce at the top] **double FEEDER_SPEED = 0.5;**
[announce at the top] **double AUTO_LAUNCH_DELAY_S = 3.0;**
[announce at the top] **double AUTO_DRIVE_DELAY_S = 3.0;**

Need a shooter and feeder motor?

Keep track of your ID, it's important
Brushed = one direction, brushless = can go in both directions (PLEASE CHECK BEFORE RUNNING A ROBOT)
[announce at the top] **CANSparkBase m_launchWheel = new CANSparkMax(6, MotorType.kBrushed);**
[announce at the top] **CANSparkBase m_feedWheel = new CANSparkMax(5, MotorType.kBrushed);**

Need all 4 tank motors combined into one drivetrain?

[announce at the top] **CANSparkBase leftRear = new CANSparkMax(1, MotorType.kBrushed);**
[announce at the top] **CANSparkBase leftFront = new CANSparkMax(2, MotorType.kBrushed);**
[announce at the top] **CANSparkBase rightRear = new CANSparkMax(3, MotorType.kBrushed);**
[announce at the top] **CANSparkBase rightFront = new CANSparkMax(4, MotorType.kBrushed);**

[announce at the top] **leftRear.follow(leftFront);**
[announce at the top] **rightRear.follow(rightFront);**

[announce at the top] **m_drivetrain = new DifferentialDrive(leftFront, rightFront);**

Shoot + delayed shooting

Want to add a delay to your auto?

[announce at the top] **double autonomousStartTime;**
[AutoInIt] **autonomousStartTime = Timer.getFPGATimestamp();**
[AutoPeriodic] **double timeElapsed = Timer.getFPGATimestamp() - autonomousStartTime;**

Want to shoot & intake during auto?

[AutoPeriodic] **m_launchWheel.set(LAUNCHER_SPEED); //if you want it off, just put 0 (or - if outtake)**
[AutoPeriodic] **m_feedWheel.set(FEEDER_SPEED); //if you want it off, just put 0 (or - if outtake)**

Launcher wheel(s) spinning the wrong direction?

[AutoInIt] **m_launchWheel.setInverted([true/false]);**
[AutoInIt] **m_feedWheel.setInverted([true/false]);**

Move + Intake

Want to move forward with the robot?

Let's assume your robot is a **TANK DRIVE** robot
Syntax: ***arcadeDrive****(double xSpeed, double zRotation)*
[AutoPeriodic] **m_drivetrain.arcadeDrive(0, 0); //if you want it off, just put 0 and 0**

Auto chooser

Want an auto chooser?

[announce at the top] **private final SendableChooser<String> m_chooser = new SendableChooser<>();**
[announce at the top] **String m_autoSelected;**

[Robotinit] **m_chooser.setDefaultOption("do nothing", kNothingAuto);**
[Robotinit] **m_chooser.addOption("launch note and drive", kLaunchAndDrive);**
[Robotinit] **m_chooser.addOption("launch", kLaunch);**
[Robotinit] **m_chooser.addOption("drive", kDrive);**
[Robotinit] **SmartDashboard.putData("Auto choices", m_chooser);**

[AutoInit] **m_autoSelected = m_chooser.getSelected();**

If chooser is created start auto logic with **if(m_autoSelected == kDrive)**

Example code

Let's assume you did all of the initializations from the top, now we can focus on the specific auto example. Let's say we have picked one of the autos from the chooser.

How it will go:

1. Shoot (3 sec delay)
2. Go back for 3 seconds while intaking (Shooter is off)
3. Going forward for 3 seconds (Intake is off, shooter is off)
4. Stop & Shoot for the rest of auto period

P.S. kDrive is a random chooser variable, your auto might have only one auto, if so, delete chooser check and start with if(timeElapsed…)
Also if you don't need some parts of the auto example, delete them.

```
if(m_autoSelected  == kDrive){
    //delayed shooting
     if(timeElapsed < AUTO_LAUNCH_DELAY_S)
       {
         m_launchWheel.set(LAUNCHER_SPEED);
         m_feedWheel.set(0);
         m_drivetrain.arcadeDrive(0, 0);
     }
     else if(timeElapsed < AUTO_DRIVE_DELAY_S + AUTO_LAUNCH_DELAY_S)
     {
    //going back and intaking
       m_launchWheel.set(0);
       m_feedWheel.set(1);
       m_drivetrain.arcadeDrive(-DRIVE_SPEED, 0);
     }
    else if(timeElapsed < AUTO_DRIVE_DELAY_S + AUTO_DRIVE_TIME_S + AUTO_LAUNCH_DELAY_S)
     {
    //going forward for 3 seconds
       m_launchWheel.set(0);
       m_feedWheel.set(0.3);
       m_drivetrain.arcadeDrive(DRIVE_SPEED, 0);
     }
    else
     //shooting
     {
       m_feedWheel.set(LAUNCHER_SPEED);
       m_drivetrain.arcadeDrive(0, 0);
    }
}
```