

Drive Train Class

```
1 package org.firstinspires.ftc.teamcode;
2
3 import com.qualcomm.robotcore.hardware.DcMotor;
4 import com.qualcomm.robotcore.hardware.Gamepad;
5 import com.qualcomm.robotcore.hardware.Servo;
6
7 /*This class is made by FTC #12535 Revolutionary Robots for
8 our robot Armstrong. The variables and
9 methods you find here are for the wheel base of Armstrong.*/
10 public class DriveTrain
11 {
12
13     //Gamepad Variables
14     Gamepad gamepad1;
15     Gamepad gamepad2;
16
17     //Wheel Motors
18     DcMotor leftFront;
19     DcMotor rightFront;
20     DcMotor leftBack;
21     DcMotor rightBack;
22
23     //Foundation Servo
24     Servo leftFoundation;
25     Servo rightFoundation;
26
27     //Drive Speed Limiter
28     double dSpd = 2;
29
30     public DriveTrain (Gamepad g1, Gamepad g2, DcMotor lF,
31     DcMotor rF, DcMotor lB, DcMotor rB, Servo lFo, Servo rFo)
32     {
33
34         //The constructor of the class allows the class to be
35 used on other programs as well as
36 //synchronizing the variables from the main program
37
38         gamepad1 = g1;
39         gamepad2 = g2;
40
41         leftFront = lF;
```

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```
40     rightFront = rF;
41     leftBack = lB;
42     rightBack = rB;
43
44     leftFoundation = lFo;
45     rightFoundation = rFo;
46
47 }
48
49 void teleOpPackage ()
50 {
51
52     //Wheel movement in relation to joystick
53     //Arcade Drive
54     leftFront.setPower(((gamepad1.left_stick_y)-(gamepad1.
left_stick_x)-(gamepad1.right_stick_x))/dSpd);
55     rightFront.setPower(((gamepad1.left_stick_y)-(
gamepad1.left_stick_x)-(gamepad1.right_stick_x))/dSpd);
56     leftBack.setPower(((gamepad1.left_stick_y)+(gamepad1.
left_stick_x)-(gamepad1.right_stick_x))/dSpd);
57     rightBack.setPower(((gamepad1.left_stick_y)+(
gamepad1.left_stick_x)-(gamepad1.right_stick_x))/dSpd);
58
59     //Speed Controller
60     if (gamepad1.y)
61     {
62
63         //Hyper(Full) Speed
64         dSpd = 1;
65
66     } else if (gamepad1.x)
67     {
68
69         //Three Quarters Speed
70         dSpd = 1.33333;
71
72     } else if (gamepad1.a)
73     {
74
75         //Half Speed
76         dSpd = 2;
77
```

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```
78     } else if (gamepad1.b)
79     {
80
81         //Quarter Speed
82         dSpd = 4;
83
84     }
85
86     if (gamepad1.right_trigger != 0)
87     {
88
89         //Foundation servos down with right trigger
90         leftFoundation.setPosition(1);
91         rightFoundation.setPosition(1);
92
93     } else
94     {
95
96         //Foundation servos flat with no trigger
97         leftFoundation.setPosition(0.5);
98         rightFoundation.setPosition(0.4);
99
100    }
101
102    }
103
104    double getDSpd ()
105    {
106
107        //Return dSpd to main program for telemetry
108        return this.dSpd;
109
110    }
111
112    void forward (double spd, int tic)
113    {
114
115        //Program to move robot forward in autonomous with
encoders
116        //The rest of the wheel base movement methods will be
the same, except the NoStop methods
117
```

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```
118         //Reset encoders for wheels
119         leftFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
120         rightFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
121         leftBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
122         rightBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
123
124         //Activate encoders
125         leftFront.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
126         rightFront.setMode(DcMotor.RunMode.RUN_USING_ENCODER)
;
127         leftBack.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
128         rightBack.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
129
130         //Sets encoder distance goal
131         leftFront.setTargetPosition(tic);
132         rightFront.setTargetPosition(tic);
133         leftBack.setTargetPosition(tic);
134         rightBack.setTargetPosition(tic);
135
136         //Sets encoders to run until the target position
137         leftFront.setMode(DcMotor.RunMode.RUN_TO_POSITION);
138         rightFront.setMode(DcMotor.RunMode.RUN_TO_POSITION);
139         leftBack.setMode(DcMotor.RunMode.RUN_TO_POSITION);
140         rightBack.setMode(DcMotor.RunMode.RUN_TO_POSITION);
141
142         //Gives power to motors to run
143         leftFront.setPower(spd);
144         rightFront.setPower(spd);
145         leftBack.setPower(spd);
146         rightBack.setPower(spd);
147
148         //Waits until the encoders hit the target position
149         while (leftFront.isBusy() && rightFront.isBusy() &&
leftBack.isBusy() && rightBack.isBusy());
150
151         //Stops robot
152         kill();
153
```

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```
154         //Resets encoders for the next method
155         leftFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
156         rightFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
157         leftBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
158         rightBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
159
160     }
161
162     void forwardNoStop (double spd, int tic)
163     {
164
165         //Same program as other methods as the other, but
doesn't include the while loop
166
167         leftFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
168         rightFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
169         leftBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
170         rightBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
171
172         leftFront.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
173         rightFront.setMode(DcMotor.RunMode.RUN_USING_ENCODER)
;
174         leftBack.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
175         rightBack.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
176
177         leftFront.setTargetPosition(tic);
178         rightFront.setTargetPosition(tic);
179         leftBack.setTargetPosition(tic);
180         rightBack.setTargetPosition(tic);
181
182         leftFront.setMode(DcMotor.RunMode.RUN_TO_POSITION);
183         rightFront.setMode(DcMotor.RunMode.RUN_TO_POSITION);
184         leftBack.setMode(DcMotor.RunMode.RUN_TO_POSITION);
185         rightBack.setMode(DcMotor.RunMode.RUN_TO_POSITION);
```

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```
186
187     leftFront.setPower(spd);
188     rightFront.setPower(spd);
189     leftBack.setPower(spd);
190     rightBack.setPower(spd);
191
192     /*Awaiting
193     if (!leftFront.isBusy() && !rightFront.isBusy() && !
leftBack.isBusy() && !rightBack.isBusy())
194     {
195
196         kill();
197
198     }
199     */
200
201 }
202
203 void backwards (double spd, int tic)
204 {
205
206     leftFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
207     rightFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
208     leftBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
209     rightBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
210
211     leftFront.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
212     rightFront.setMode(DcMotor.RunMode.RUN_USING_ENCODER)
;
213     leftBack.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
214     rightBack.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
215
216     leftFront.setTargetPosition(-tic);
217     rightFront.setTargetPosition(-tic);
218     leftBack.setTargetPosition(-tic);
219     rightBack.setTargetPosition(-tic);
220
221     leftFront.setMode(DcMotor.RunMode.RUN_TO_POSITION);
```

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```
222     rightFront.setMode(DcMotor.RunMode.RUN_TO_POSITION);
223     leftBack.setMode(DcMotor.RunMode.RUN_TO_POSITION);
224     rightBack.setMode(DcMotor.RunMode.RUN_TO_POSITION);
225
226     leftFront.setPower(spd);
227     rightFront.setPower(spd);
228     leftBack.setPower(spd);
229     rightBack.setPower(spd);
230
231     while (leftFront.isBusy() && rightFront.isBusy() &&
leftBack.isBusy() && rightBack.isBusy());
232
233     kill();
234
235     leftFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
236     rightFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
237     leftBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
238     rightBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
239
240 }
241
242 void backwardsNoStop (double spd, int tic)
243 {
244
245     leftFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
246     rightFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
247     leftBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
248     rightBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
249
250     leftFront.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
251     rightFront.setMode(DcMotor.RunMode.RUN_USING_ENCODER)
;
252     leftBack.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
253     rightBack.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
```

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```
254
255     leftFront.setTargetPosition(-tic);
256     rightFront.setTargetPosition(-tic);
257     leftBack.setTargetPosition(-tic);
258     rightBack.setTargetPosition(-tic);
259
260     leftFront.setMode(DcMotor.RunMode.RUN_TO_POSITION);
261     rightFront.setMode(DcMotor.RunMode.RUN_TO_POSITION);
262     leftBack.setMode(DcMotor.RunMode.RUN_TO_POSITION);
263     rightBack.setMode(DcMotor.RunMode.RUN_TO_POSITION);
264
265     leftFront.setPower(sp);
266     rightFront.setPower(sp);
267     leftBack.setPower(sp);
268     rightBack.setPower(sp);
269
270 }
271
272 void right (double sp, int tic)
273 {
274
275     leftFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
276     rightFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
277     leftBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
278     rightBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
279
280     leftFront.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
281     rightFront.setMode(DcMotor.RunMode.RUN_USING_ENCODER)
;
282     leftBack.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
283     rightBack.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
284
285     leftFront.setTargetPosition(tic);
286     rightFront.setTargetPosition(-tic);
287     leftBack.setTargetPosition(-tic);
288     rightBack.setTargetPosition(tic);
289
290     leftFront.setMode(DcMotor.RunMode.RUN_TO_POSITION);
```


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```
291     rightFront.setMode(DcMotor.RunMode.RUN_TO_POSITION);
292     leftBack.setMode(DcMotor.RunMode.RUN_TO_POSITION);
293     rightBack.setMode(DcMotor.RunMode.RUN_TO_POSITION);
294
295     leftFront.setPower(sp);
296     rightFront.setPower(sp);
297     leftBack.setPower(sp);
298     rightBack.setPower(sp);
299
300     while (leftFront.isBusy() && rightFront.isBusy() &&
leftBack.isBusy() && rightBack.isBusy());
301
302     kill();
303
304     leftFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
305     rightFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
306     leftBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
307     rightBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
308
309     //Encoder Strafe Right
310
311 }
312
313 void rightNoStop (double sp, int tic)
314 {
315
316     leftFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
317     rightFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
318     leftBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
319     rightBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
320
321     leftFront.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
322     rightFront.setMode(DcMotor.RunMode.RUN_USING_ENCODER)
;
```

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```
323     leftBack.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
324     rightBack.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
325
326     leftFront.setTargetPosition(tic);
327     rightFront.setTargetPosition(-tic);
328     leftBack.setTargetPosition(-tic);
329     rightBack.setTargetPosition(tic);
330
331     leftFront.setMode(DcMotor.RunMode.RUN_TO_POSITION);
332     rightFront.setMode(DcMotor.RunMode.RUN_TO_POSITION);
333     leftBack.setMode(DcMotor.RunMode.RUN_TO_POSITION);
334     rightBack.setMode(DcMotor.RunMode.RUN_TO_POSITION);
335
336     leftFront.setPower(spd);
337     rightFront.setPower(spd);
338     leftBack.setPower(spd);
339     rightBack.setPower(spd);
340
341 }
342
343 void left (double spd, int tic)
344 {
345
346     leftFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
347     rightFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
348     leftBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
349     rightBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
350
351     leftFront.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
352     rightFront.setMode(DcMotor.RunMode.RUN_USING_ENCODER)
;
353     leftBack.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
354     rightBack.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
355
356     leftFront.setTargetPosition(-tic);
357     rightFront.setTargetPosition(tic);
358     leftBack.setTargetPosition(tic);
359     rightBack.setTargetPosition(-tic);
```

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```
360
361     leftFront.setMode(DcMotor.RunMode.RUN_TO_POSITION);
362     rightFront.setMode(DcMotor.RunMode.RUN_TO_POSITION);
363     leftBack.setMode(DcMotor.RunMode.RUN_TO_POSITION);
364     rightBack.setMode(DcMotor.RunMode.RUN_TO_POSITION);
365
366     leftFront.setPower(spd);
367     rightFront.setPower(spd);
368     leftBack.setPower(spd);
369     rightBack.setPower(spd);
370
371     while (leftFront.isBusy() && rightFront.isBusy() &&
leftBack.isBusy() && rightBack.isBusy());
372
373         kill();
374
375         leftFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
376         rightFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
377         leftBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
378         rightBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
379
380         //Encoder Strafe Left
381
382     }
383
384     void leftNoStop (double spd, int tic)
385     {
386
387         leftFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
388         rightFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
389         leftBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
390         rightBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
391
392         leftFront.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
```

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```
393         rightFront.setMode(DcMotor.RunMode.RUN_USING_ENCODER)
394     ;
395         leftBack.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
396         rightBack.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
397
398         leftFront.setTargetPosition(-tic);
399         rightFront.setTargetPosition(tic);
400         leftBack.setTargetPosition(tic);
401         rightBack.setTargetPosition(-tic);
402
403         leftFront.setMode(DcMotor.RunMode.RUN_TO_POSITION);
404         rightFront.setMode(DcMotor.RunMode.RUN_TO_POSITION);
405         leftBack.setMode(DcMotor.RunMode.RUN_TO_POSITION);
406         rightBack.setMode(DcMotor.RunMode.RUN_TO_POSITION);
407
408         leftFront.setPower(spd);
409         rightFront.setPower(spd);
410         leftBack.setPower(spd);
411         rightBack.setPower(spd);
412     }
413
414     void tRight (double spd, int tic)
415     {
416
417         leftFront.setMode(DcMotor.RunMode.
418     STOP_AND_RESET_ENCODER);
419         rightFront.setMode(DcMotor.RunMode.
420     STOP_AND_RESET_ENCODER);
421         leftBack.setMode(DcMotor.RunMode.
422     STOP_AND_RESET_ENCODER);
423         rightBack.setMode(DcMotor.RunMode.
424     STOP_AND_RESET_ENCODER);
425
426         leftFront.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
427         rightFront.setMode(DcMotor.RunMode.RUN_USING_ENCODER)
428     ;
429
430         leftBack.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
431         rightBack.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
432
433         leftFront.setTargetPosition(tic);
434         rightFront.setTargetPosition(-tic);
```

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```
429     leftBack.setTargetPosition(tic);
430     rightBack.setTargetPosition(-tic);
431
432     leftFront.setMode(DcMotor.RunMode.RUN_TO_POSITION);
433     rightFront.setMode(DcMotor.RunMode.RUN_TO_POSITION);
434     leftBack.setMode(DcMotor.RunMode.RUN_TO_POSITION);
435     rightBack.setMode(DcMotor.RunMode.RUN_TO_POSITION);
436
437     leftFront.setPower(sp);
438     rightFront.setPower(sp);
439     leftBack.setPower(sp);
440     rightBack.setPower(sp);
441
442     while (leftFront.isBusy() && rightFront.isBusy() &&
leftBack.isBusy() && rightBack.isBusy());
443
444     kill();
445
446     leftFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
447     rightFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
448     leftBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
449     rightBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
450
451     //Encoder Turn Right
452
453 }
454
455 void tRightNoStop (double sp, int tic)
456 {
457
458     leftFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
459     rightFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
460     leftBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
461     rightBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
```

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```
462
463     leftFront.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
464     rightFront.setMode(DcMotor.RunMode.RUN_USING_ENCODER)
    ;
465     leftBack.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
466     rightBack.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
467
468     leftFront.setTargetPosition(tic);
469     rightFront.setTargetPosition(-tic);
470     leftBack.setTargetPosition(tic);
471     rightBack.setTargetPosition(-tic);
472
473     leftFront.setMode(DcMotor.RunMode.RUN_TO_POSITION);
474     rightFront.setMode(DcMotor.RunMode.RUN_TO_POSITION);
475     leftBack.setMode(DcMotor.RunMode.RUN_TO_POSITION);
476     rightBack.setMode(DcMotor.RunMode.RUN_TO_POSITION);
477
478     leftFront.setPower(sp);
479     rightFront.setPower(sp);
480     leftBack.setPower(sp);
481     rightBack.setPower(sp);
482
483 }
484
485 void tLeft (double sp, int tic)
486 {
487
488     leftFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
489     rightFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
490     leftBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
491     rightBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
492
493     leftFront.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
494     rightFront.setMode(DcMotor.RunMode.RUN_USING_ENCODER)
    ;
495     leftBack.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
496     rightBack.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
497
```

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```
498     leftFront.setTargetPosition(-tic);
499     rightFront.setTargetPosition(tic);
500     leftBack.setTargetPosition(-tic);
501     rightBack.setTargetPosition(tic);
502
503     leftFront.setMode(DcMotor.RunMode.RUN_TO_POSITION);
504     rightFront.setMode(DcMotor.RunMode.RUN_TO_POSITION);
505     leftBack.setMode(DcMotor.RunMode.RUN_TO_POSITION);
506     rightBack.setMode(DcMotor.RunMode.RUN_TO_POSITION);
507
508     leftFront.setPower(sp);
509     rightFront.setPower(sp);
510     leftBack.setPower(sp);
511     rightBack.setPower(sp);
512
513     while (leftFront.isBusy() && rightFront.isBusy() &&
leftBack.isBusy() && rightBack.isBusy());
514
515         kill();
516
517         leftFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
518         rightFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
519         leftBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
520         rightBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
521
522         //Encoder Turn Left
523
524     }
525
526     void tLeftNoStop (double sp, int tic)
527     {
528
529         leftFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
530         rightFront.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
531         leftBack.setMode(DcMotor.RunMode.
STOP_AND_RESET_ENCODER);
```

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```
532     rightBack.setMode(DcMotor.RunMode.  
STOP_AND_RESET_ENCODER);  
533  
534     leftFront.setMode(DcMotor.RunMode.RUN_USING_ENCODER);  
535     rightFront.setMode(DcMotor.RunMode.RUN_USING_ENCODER)  
    ;  
536     leftBack.setMode(DcMotor.RunMode.RUN_USING_ENCODER);  
537     rightBack.setMode(DcMotor.RunMode.RUN_USING_ENCODER);  
538  
539     leftFront.setTargetPosition(-tic);  
540     rightFront.setTargetPosition(tic);  
541     leftBack.setTargetPosition(-tic);  
542     rightBack.setTargetPosition(tic);  
543  
544     leftFront.setMode(DcMotor.RunMode.RUN_TO_POSITION);  
545     rightFront.setMode(DcMotor.RunMode.RUN_TO_POSITION);  
546     leftBack.setMode(DcMotor.RunMode.RUN_TO_POSITION);  
547     rightBack.setMode(DcMotor.RunMode.RUN_TO_POSITION);  
548  
549     leftFront.setPower(sp);  
550     rightFront.setPower(sp);  
551     leftBack.setPower(sp);  
552     rightBack.setPower(sp);  
553  
554 }  
555  
556 void grab ()  
557 {  
558  
559     //Moves Servos Down  
560     leftFoundation.setPosition(1);  
561     rightFoundation.setPosition(1);  
562  
563 }  
564  
565 void release ()  
566 {  
567  
568     //Moves Servos Up  
569     leftFoundation.setPosition(0.5);  
570     rightFoundation.setPosition(0.4);  
571
```


Drive Train Class

```
572     }
573
574     void kill ()
575     {
576
577         //Stops wheelbase
578
579         leftFront.setPower(0);
580         rightFront.setPower(0);
581         leftBack.setPower(0);
582         rightBack.setPower(0);
583
584     }
585
586 }
587
```