

```
1  from pybricks.parameters import Stop
2  from pybricks.tools import StopWatch, wait
3  from threading import Thread
4
5
6  # Class to control forklifts
7  class Forklift:
8      def __init__(self, config, motor, rackLength, stallDir=-1, offset=0):
9          self.config = config
10         self.motor = motor
11         self.STALLDIR = stallDir
12         self.RACKLENGTH = rackLength
13         self.RATIO = 360/self.RACKLENGTH
14         self.CORR = 0
15         self.OFFSET = offset
16
17     def _limit(self, input):
18         return max(min(input, 180), -180)
19
20     def _moveTo(self, angle, speed, Wait=10000):
21         if self.motor.angle() > angle:
22             angle = self._limit(angle + self.CORR)
23         else:
24             angle = self._limit(angle)
25         timer = StopWatch()
26         Thread(target=self.motor.run_target, args=(speed, angle),
27               kwargs={"then": Stop.HOLD}).start()
28         wait(50)
29         while Wait > 0 and self.done() == False:
30             if timer.time() > Wait:
31                 self.stop()
32                 break
33             wait(50)
34
35     def _move(self, deltaAngle, speed, wait=10000):
36         # print("move: ", self.motor.angle(), deltaAngle)
37         angle = self.motor.angle()
38         self._moveTo(angle+deltaAngle, speed, Wait=wait)
39
40     def initPos(self, pos=0):
41         if self.config.state.getState() == 3:
42             return
43
44         self.motor.reset_angle(0)
45         self.motor.run_until_stalled(200*self.STALLDIR, duty_limit=50)
46         self.motor.reset_angle(
47             self.STALLDIR * (self.RACKLENGTH/2*self.RATIO)+self.OFFSET)
48         self.moveTo(pos, 200)
49         self.stop()
50
51     def getPos(self):
52         return round(self.motor.angle() / self.RATIO)
53
54     def stop(self):
55         self.motor.stop()
56
57     def moveTo(self, dist, speed=400, wait=10000):
58         if self.config.state.getState() == 3:
59             return
60         self._moveTo(dist*self.RATIO, speed, wait)
61
62     def move(self, deltaDist, speed=400, wait=10000):
63         if self.config.state.getState() == 3:
64             return
65         self._move(deltaDist*self.RATIO, speed, wait)
66
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67     def correction(self, corr):
68         self.CORR = corr * self.RATIO
69
70     def done(self):
71         return self.motor.control.done()
72
73     def stalled(self):
74         return self.motor.control.stalled()
75
76     def getRange(self):
77         return [-self.RACKLENGTH/2, self.RACKLENGTH/2]
78
```