Wall Follow Algorithm (Webots & Python)

```
# function for setting motor velocities to radians/sec (wheel radius is 0.8 inch)
def setSpeedsIPS(vl,vr):
   leftMotor.setVelocity(vl/.8)
   rightMotor.setVelocity(vr/.8)

# function for getting distance sensors in inches converted from meters
def getDistanceSensors():
   return [leftDistanceSensor.getValue()*39.3701, rightDistanceSensor.getValue()*39.3701]

# wall follow algorithm
def wallFollow(wall, targetDistance, Kp_side):
    v = 5 # speed, can be changed
    if(wall == 'l'):
       error = getDistanceSensors()[0] - targetDistance
       if(error<0):
          setSpeedsIPS(v - abs(error)*Kp_side, v) # turn away from right wall
       else:
          setSpeedsIPS(v,v - abs(error)*Kp_side) # turn towards right wall

    elif(wall == 'r'):
       error = getDistanceSensors()[1] - targetDistance
       if(error<0):
          setSpeedsIPS(v,v - abs(error)*Kp_side)    # turn away from left wall
       else:
          setSpeedsIPS(v - abs(error)*Kp_side, v)   # turn towards left wall

# main loop
while robot.step(timestep) != -1:
          …
          if(leftDist<rightDist):
                    wallFollow('l',7,.1)
          else:
                    wallFollow('r',7,.1)
          …
```