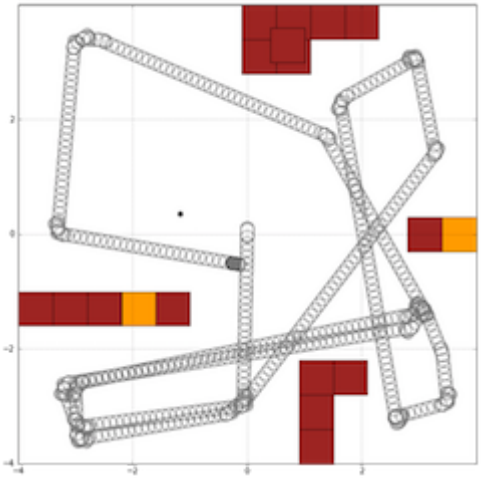
Wandering



A simple wandering behavior can be achieved by the combination of the previously coded exercises:

```
repeat forever
  move forward until an obstacle is detected
  turn either left or right for free space
```

Instead of starting from scratch, you will reuse the code in two Python functions, which can be called from inside the main loop.

In [1]:

```
import packages.initialization
import pioneer3dx as p3dx
p3dx.init()
```

First, you need to copy and paste the code inside the following functions:

In [2]:

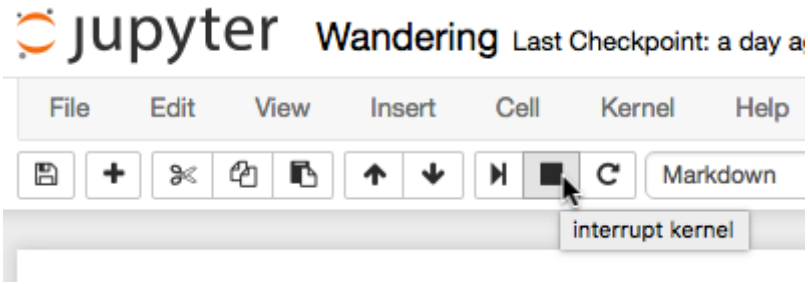
```
threshold = 1.2 # in meters
def forward():
    # Move forward until an obstacle is detected
    while p3dx.distance[3] > threshold and p3dx.distance[4] > threshold:
        p3dx.move(2.5, 2.5)
    p3dx.stop()
```

In [3]:

```
def turn():
    # Find the minimum of the left sensors (s0, s1, s2).
    min_left_dist  = p3dx.distance[0:3]
    # Find the minimum of the right sensors (s5, s6, s7).
    min_right_dist = p3dx.distance[5:]
    # If the left minimum is bigger than the right minimum turn left,
    # otherwise turn right.
    if min_left_dist > min_right_dist:
        wl = -2.7 # rad/sec
        wr =  2.7 # rad/sec
    else:
        wl =  2.7 # rad/sec
        wr = -2.7 # rad/sec
    # In any case, keep turning until both front sensors (s3, s4) are bigger tha
n the chosen minimum
    while p3dx.distance[3] < threshold or p3dx.distance[4] < threshold:
        p3dx.move(wl, wr)
    p3dx.stop()
```

Finally, you should run the main loop in the following cell.

The execution can be stopped at any time by pressing the *interrupt kernel* button.



In [4]:

```
try:
    # Repeat forever
    while True:
        forward()
        turn()
except KeyboardInterrupt:
    p3dx.stop()
```

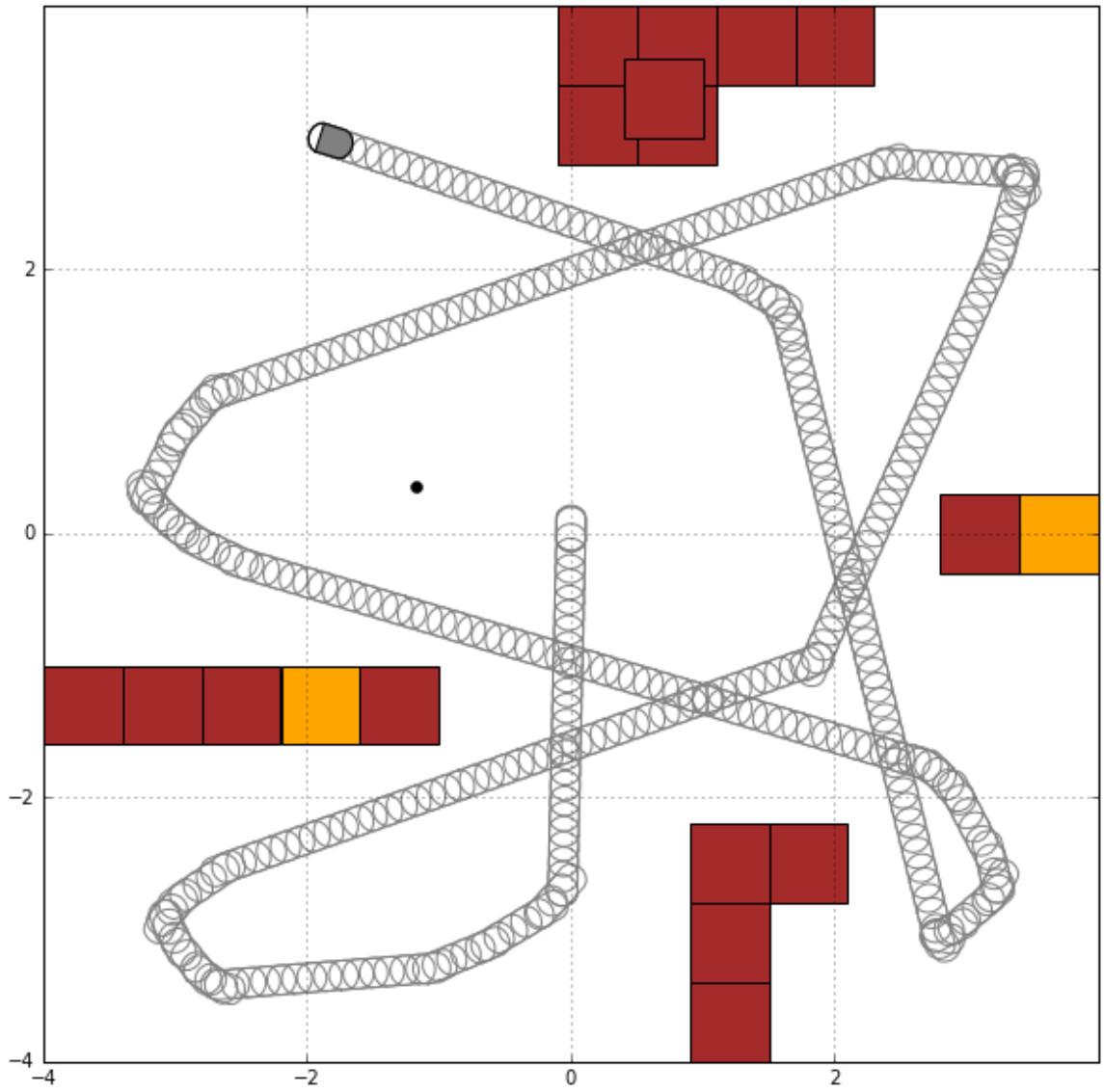
The resulting trajectory can be plotted.

In [5]:

```
%matplotlib inline
import trajectory
```

In [6]:

```
trajectory.plot()
```



Next application: wall following (Wall%20Following.ipynb).

Try-a-Bot: an open source guide for robot programming

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