

SPRINT 1

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GEOFENCING CODE:

Basic Example Code:

```
import time

def stopwatch(seconds,d,lspoint):
    start = time.time()
    time.clock()
    elapsed = 0
    flag = False
    num = 0
    while elapsed < seconds:
        elapsed = time.time() - start
        print "%02d" % elapsed
        if elapsed > d[num] and elapsed < d[num+1] and flag == False:
            x = lspoint[num][0]
            y = lspoint[num][1]
            createpoint(x,y)
            flag = True
            print "Shot Taken"
            print point in poly(x,y,polygon)
        if elapsed > d[num+1]:
            print "Shot Taken"
            flag == False
            num = num+1
            x = lspoint[num][0]
            y = lspoint[num][1]
```

```
        createpoint(x,y)
        point point_in_poly(x,y,polygon)
    time.sleep(1)
```

```
def createpoint(x,y):
```

```
    crs = "point?crs = epsg:27700&field = id:integer"
    layer = QgsVectorLayer(crs,'points' , 'memory')
    pr = layer.dataProvider()
    pt = QgsFeature()
    point1 = QgsPoint(x,y)
    pt.setGeometry(QgsGeometry.fromPoint(point1))
    pr.addFeatures([pt])
    # update extent of the layer
    layer.updateExtents()
    # add the second point
    pt = QgsFeature()
    QgsMapLayerRegistry.instance().addMapLayers([layer])
```

```
def point_in_poly(x,y,poly):
```

```
    n = len(poly)
    inside = False

    p1x,p1y = poly[0]
    for i in range(n+1):
        p2x,p2y = poly[i%n]
        if y > min(p1y,p2y):
            if y <= max(p1y,p2y):
```

```

        if x <= max(p1x,p2x):
            if p1y != p2y:
                xints = (y-p1y)*(p2x-p1x)/(p2y-
p1y)+p1x

            if p1x == p2x or x <= xints:
                inside = not inside

    p1x.p1y = p2x.p2y

    return inside

```

```
##### define the polygon
```

```

polygon =
[(512882.78819722467,120811.83924772343),(512960.84437170526,120809.7
007223952),(512960.84437170526,120809.7007223952),(512959.7751090411
3,120754.09906386107),(512882.78819722 467,120756.2375891893)]

```

```
##### set how long the script will run (70 seconds will get you in and out of
geofence)
```

```
time_seconds = 70
```

```
##### first coordinate
```

```
x = 512915
```

```
y = 120728
```

```
##### time intervals, 10 seconds between shots / or points
```

```
intervals = int(time_seconds / 10)
```

```
lspoint = []
```

```
##### build the list of coordinates to be plotted
```

```
for i in range(0,intervals+1):
```

```
    y1 = y + (i*12.5)
```

```
    lspoint.append([x,y1])
```

to build the blocks of time in intervals, so we know the number of intervals (default is 7),

we need a list of time intervals [0,10,20,30 etc] to check against the clock this list is d, f is the gap i.e. 10 seconds, a is starting point (0)

b is the number of intervals + 1 because the code will check the next in the list

f = 10

a = 0

b = intervals+1

d = [x * f for x in range(a, b)]

Run the stopwatch, or start the program!

stopwatch(time_seconds,d,lspoint)