SPRINT 1

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)
                        print 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),(512960.84437170526,120809.7007223952),(512960.
84437170526,120809.7007223952),(512959.77510904113,120754.09906386107),(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 ie 10 seconds, a is starting point (0)

### b is the number of intervals + 1 becuase the code will check the 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)
```