Sprint 1

Team ID: PNT2022TMID26623 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 \le max(p1y,p2y):
         if x \le 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 =
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 because the code will check the next in the list
f = 10
a = 0
b = intervals + 1
d = [x * f \text{ for } x \text{ in range}(a, b)]
### Run the stopwatch, or start the program!
stopwatch(time_seconds,d,lspoint)
```