

DATE	13-11-2022
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PROJECT TITLE	IOT based safety gadget for child Safety Monitoring andNotification

Delivery plan sprint-1

Live Location Tracking:

GPS is installed on gadget to track its current location can be tracked on android app and via SMS request sent from parent phone to safety gadget. Outputs of live location tracking

2) Panic Alert Systems:

Panic alert system on gadget is triggered during panic situation, automatic call and SMS are triggered to parental phone. The alert is also updated to the cloud for purpose of app monitoring. Fig. 4. Outputs of panic alert system.

3) Stay Connected Feature:

Stay connected feature is used to trigger call and pre-defined SMS anytime from gadget to parental phone by just pressing a button and also parent can make SMS and call to the gadget anytime.

4) Health Monitoring System:

Health monitoring system is implemented using heart beat sensor, temperature sensor which is updated to the cloud and also can be monitored via app. The current value of sensors can be obtained using SMS request sent to gadget from parent phone. Outputs of health monitoring system.

5) Gadget Plugged or Unplugged Monitoring:

Gadget plug or unplugged is monitored using contact switch installed on smart gadget, as soon as the device is unplugged, an alert is provided to parent phone via SMS and it is also updated to cloud for app monitoring.

GEOFENCING CODE:

Basic Example Code:

```
import time
def
    stopwatch(secon
    ds,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.updateExtent
s()

# add the
second pointpt
= 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)+p1xif p1x ==
```

```
p2x or x <= xints:
```

```
inside = not insidep1x,p1y =
```

p2x,p2y

return inside

define the polygon

```

polygon =
[(512882.78819722467,120811.83924772343),(512960.8443717052
6,120809.7007223952),(512960.
84437170526,120809.7007223952),(512959.77510904113,120754.0
9906386107),(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

coordinatex =

512915

y = 120728

time intervals, 10 seconds

between shots / or pointsintervals =

int(time_seconds / 10)

lspoint = []

build the list of

coordinates to be plottedfor 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 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)
```


