HERE Map Product Portfolio Operations and Spatial Solutions

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Abstract. An ideal planning framework demands arrangement of the informational index which contains a couple of parts and characterized essentials. These fragments are mostly depicted as streets, spots of interest, territory information that joins the addresses, house numbers, postal codes, and so on, and various other central parts. In this endeavor, our task was to discover these urgent segments in the HERE guide maker device. We were working on the HERE guide maker creator to add missing streets, spots of interest, and point addresses. HERE guide maker creator is a live guide altering instrument that has more than 45 highlights across 5 guide classes. These classes essentially comprised streets, bicycle paths, walkways, spots of interest, and addresses. The rudimentary part is, this guide maker apparatus doesn't need any outside establishments. It is completely electronic and requires a steady web association. After the assortment and extension of the informational collection, it is critical to actualizing the equivalent. As we as a whole realize that the development of Electric Vehicles has reformed the car area. Vehicles, cruisers, transports, get trucks, and even carts are getting electric. In a nation like India, which represents practically 20% of the total populace, the move is basic. Clean versatility has consistently been a subject of discussion and concern, and EV is one vital segment to accomplish it. Yet, there are still subtleties in regards to this innovation when its application in non-industrial nations like India comes into thought. We as a group thought of an answer utilizing HERE guides. In this, we attempted to show that how the current issues for EVs can take care of individuals and how our information will be useful for the equivalent.

Keywords. HERE Map Creator tool, EV, Geocoding.

INTRODUCTION

About HERE Map Creator Tool

Map Creator is the crowdsourcing map editor from HERE. It enables local mapping enthusiasts to make map edits and add content to the HERE location platform to keep the data fresh. You can add, update and delete roads, places, and house numbers in around 200 countries. To use the HERE map creator, first create an account on mapcreator.here.com. After signing in with the account, now you can start exploring various geographical locations and can update missing or incorrect information. To guarantee the exactness and nature of HERE maps, all the local area content is confirmed by HERE's Geo-expert before it gets refreshed and incorporated into HERE. In

HERE maps, there are different kinds of roads, right through to pedestrian walkways and trails. To be able to prepare the correct steering data, it is very important to define different types of the road with their characteristics. In HERE map creator, there are mainly 5 types of roads and these include highway, main, local access, residential, and trail roads. While stamping streets, the HERE map creator provides a set of various road attributes which helps in providing useful information about that street in HERE maps. These attributes include road type, street name, avg. speed, max speed, min speed, 1or 2-way, number of lanes, quality of roads, and many more.

WORKSPACE OF HERE MAP CREATOR TOOL

Fig.1 Workspace of HERE Map Creator Tool

Here Map Workspace is the platform where user, developer will perform their operation and make changes to the pre-stored databases.

Problem Description

Add or update road KPI's, cycle paths and walkways. Add or edit places of interest. Add or update addresses and pinpoint their exact location. The emergence of Electric Vehicles has revolutionized the automotive sector. Cars, motorcycles, buses, pick-up trucks, and even rickshaws are becoming electric. In a country like India, which accounts for almost 20% of the world population, the shift is imperative. Clean mobility has always been a topic of debate and concern, and EV is one crucial component to achieve it.

Literature Review

1. Validating trip travel time provided by smartphone navigation applications in India
   Ahmad H. Alomar, Bashar. Al-Omari and Abdallah Al-Hamdan.
   This examination pointed toward approving the estimated time of arrival given by the three route applications; Google Guides, Here-We Go, and Waze, in light of field information. The examination depended on the blunder in the estimated time of arrival given. An examination is absent here, as it appeared in the writing survey. This is important for another field of multidisciplinary research that relies upon software engineering, information science, route, planning and geographic data framework (GIS).

2. Overcoming challenges in developing more usable Pedestrian Navigation Systems
   Ioannis Delikostidis, Corné P.J.M. van Elzakker & Menno-Jan Kraak
   This paper acquainted UCD-project importance with improving the convenience of an individual by walking course structures. One of the essential targets was to give a more significant comprehension.

3. Realizing the electric-vehicle revolution
   Martino Tran, David Banister, Justin D. K. Bishop & Malcolm D. McCulloch
   Electric Vehicle Revolution is definitely a great success toward the Global Warming Concerned and implementation of the basic need features for successful result of the technology a better infrastructure and communication is necessary.

Operations Perform on MAP CREATOR TOOL

Add Road:
1.Sign into Map Creator.
2. Zoom into editing level 16 or higher.
3. Select the 'Add road' option.
4.Click on the map to set the starting point of the road and draw its course. Each click inserts a new' shape point' that allows you to follow the road's actual curves better.
5.To finish the road, double-click where you want the road to end or click the End road button on top.
6.Add more information about the new road on the Details panel on the left.

Modify Road:
   1.Zoom in to editing level 16 or higher.
   2.Select the road you want to modify.
     •Change the course of the road by selecting a shape point and moving it to the correct place.
     •Right click on a shape point or the road for further editing options like turn restrictions and junctions.
     •Change the attributes of a road in the details panel and modify attributes such as road name, average speed, number of lanes, etc.

Add Place:
1.Sign in to Map Creator.
2.Zoom in to editing level 18.
3.Select the 'Add place' option.
4.Click on the map to set the location of the place. The new place will be associated with the nearest road.
5.In the details panel select first the 'Place Category' and then add more information about the new place.

Modify Place:
1.Zoom into editing level 18.
2.Select the place you want to modify.
•Change the location of the place by moving the Place Icon.

•Remove the routing point by right-clicking on the icon and selecting Remove routing point.
•Change the attributes in the details panel.

How to add a house number
1.Make sure that you're at the editing zoom level 18.
2.Turn on the house number layer in the Layers menu.
3.Click on the 'Add house number' icon on the right side of the screen.
4.Click on the map to set the house location.
5.Add details, such as house number or building name.
6.Move the routing point (red circle) if the house is not associated to the correct road.

How to modify a house number
1.Make sure that you're at editing level 18.
2.Click on the house number you want to change. Now you can optimize.
•The house number or building name in the left panel by overwriting the existing or adding new information.
•The position of the house address by moving the icon.
•The position of the corresponding routing point by moving the red circle.

Verification
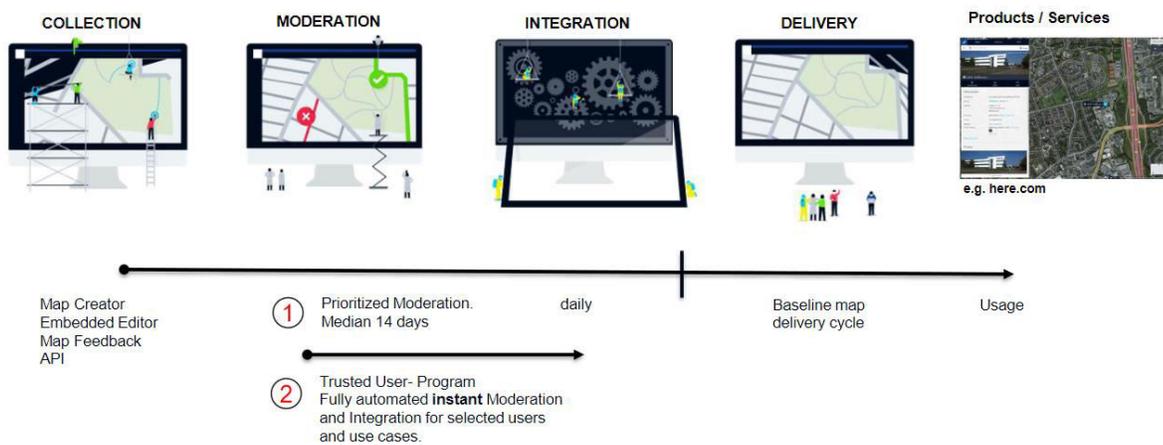

Fig. 2 Verify

Your Stuff

• It shows total statistics represented to date and last accessing.
• Your feed shows the list of total edits.
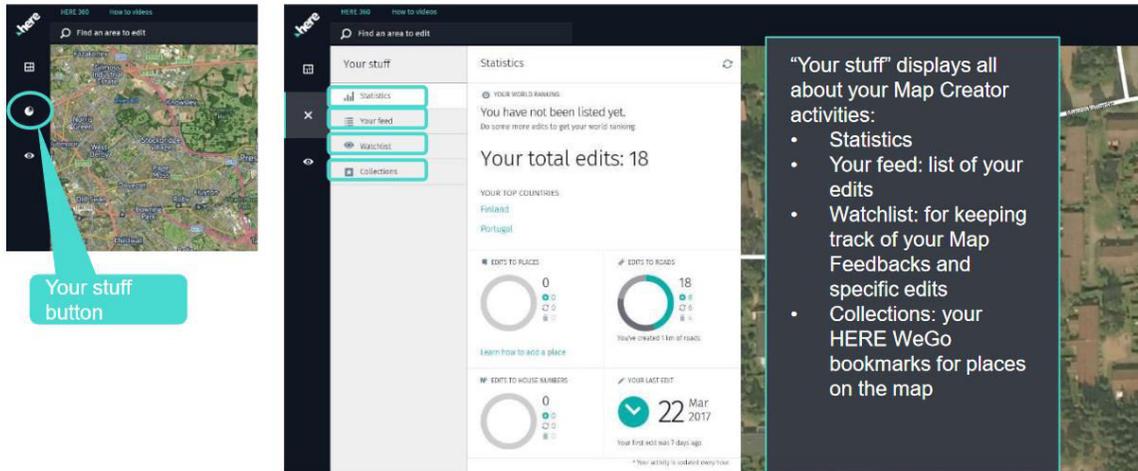
Fig. 3 Your Stuff

Speed up validation

• When adding or updating a POI, you will find yellow highlighted fields in the details panel. The highlights indicate which information is required to add the place to our database.

• The required information is related to the place categories, so it varies from one category to another.

• A POI can be saved if not all the required information is completed, but before the edit can be added to our database, all the missing required information must be completed.

Algorithm

Apart from the task of marking roads on HERE map creator, we were also given the task of building an application that helps in extracting roads from remote sensing images. The algorithm is based on image processing. The algorithm uses K-means clustering to detect the road area and then on-road area. Various python libraries are used to run this algorithm like OpenCV, matplotlib, sklearn and NumPy.

Now let us look at the steps that were involved inbuilding up the algorithm.

• Reading the image

```
import cv2 as cv

import matplotlib.pyplot as plt
```

```
import numpy as np
            from sklearn. cluster import KMeans epsilon = 40imgPath =
"./images/input2.png"
image = cv. imread (imgPath, 1) cv. imshow ('original  image', image)
image_gray = cv.imread(imgPath, 0)image = image/255
```

- Image segmentation via K-meansclustering

```
pic_n=image. reshape (image. shape[0]*image.shape[1], image.shape[2])
kmeans=KMeans(n_clusters=4,
random_state=0).fit(pic_n)
pic2show=kmeans.cluster_centers_[kmeans.labels_]
cluster_pic=pic2show.reshape(image.sha
pe[0],image.shape[1],image.shape[2])
cluster_pic=cluster_pic*255
cluster_pic=np.uint8(cluster_pic) img =cluster_pic
```

- Converting image to gray-scale image

```
Img=cv.cvtColor(img,cv.COLOR_BGR2 GRAY)
cv.imshow("gray_image",img);
histogram=cv.calcHist([img],[0],N one,[256],[0,256])
maxIntensity=np.where(histogram==
np.amax(histogram))[0][0]
```

- Thresholding using epsilon-neighborhood

```
gray_r=img.reshape(img.shape[0]*img.shape[1])
for i in range(gray_r.shape[0]):if abs(gray_r[i] - maxIntensity) <=
epsilon:
gray_r[i]=255else:gray_r[i]=0


img = gray_r.reshape(img.shape[0], img.shape[1])
t = imgcv.imshow('thresholding', t)
```

- Detect edges using the Laplacian-gradient method

```
                                    edges = cv.Laplacian(img,cv.CV_64F)
                                    cv.imshow('Edge detection',edges)
```

- Overlay image

```
overlay= cv.addWeighted(image_gray,0.5, edges.astype(np.uint8), 0.5,0)
    cv.imshow('Overlay
  Image',overlay) cv.waitKey(0)
  cv.destroyAllWindows()
```

The algorithm provides various results of a remote sensing image related to image segmentation using k-means epsilon neighbourhood thresholding edge detection and overlay image.

Fig 4: original image

Fig 5: image segmentation
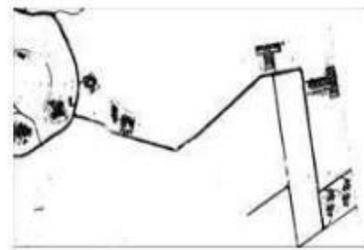
Fig 6: epsilon neighbourhood
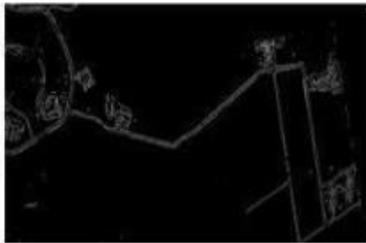
Fig 7: edge detection

Fig 8: overlay image

Fig. 4 Result of an Algorithm

CONCLUSION

The main motive of this study is a service to the public, which would help them in navigation. The main aim of road extraction is to find out various features of the roads and their nearby targets. This all can be done using the above algorithm easily. But accuracy can be increased, and noise can be reduced by combining various other methods and techniques, and this needs to be researched further.

ACKNOWLEDGMENTS

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6. Here Map creator tool tutorial available on HERE Technology YouTube Channel and also in "help section".

7. "Guide- HERE EV Charge Point API-HERE Developer" find an EV station using location data