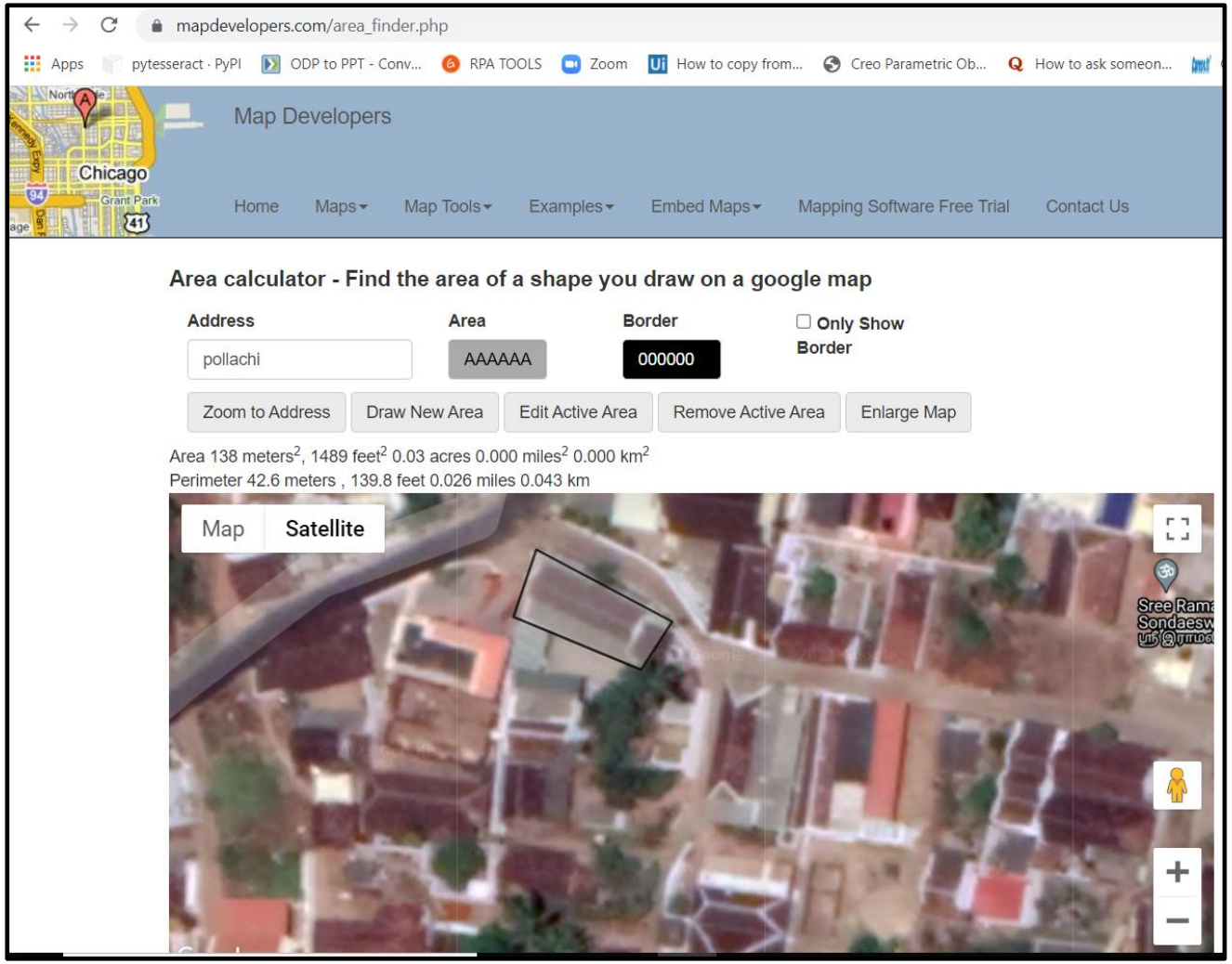
Scope :- To find the automation possibilities in Solar Panel layout generation process

Engineering Automation

Enabling Engineers To Achieve Extraordinary Productivity

Idea 1 – Automated area calculation of Roof using G-Map :-

- Access the target latitude via google maps
- Allow the Users to select the boundary by the drawn shape
- Extract the latitude corners
- Calculate the Area based on given latitudes
- Based on the area , we able to quote the approximate material required details
- We need to develop features like following https://www.mapdevelopers.com/area_finder.php

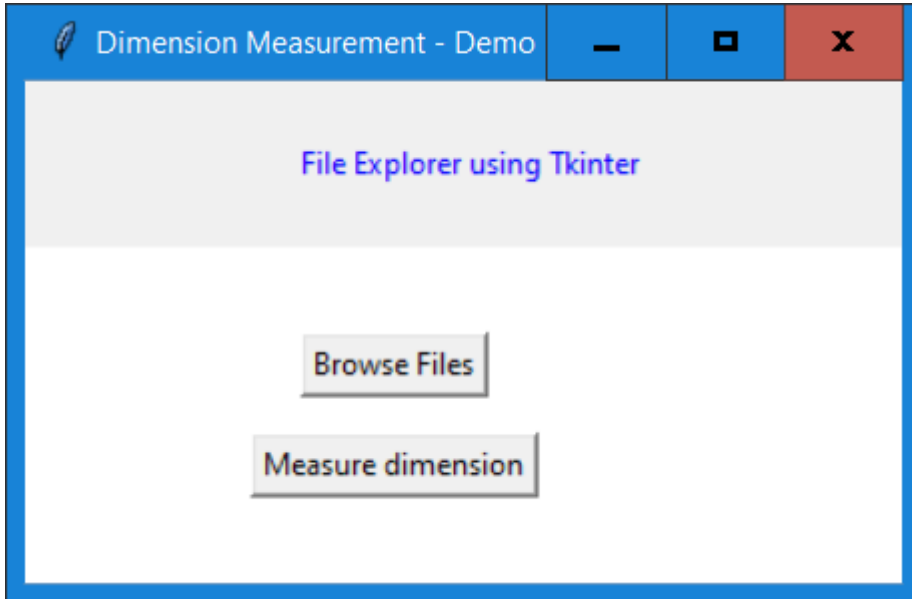


Feedbacks Noted :-

- Accuracy – Needs to evaluate
- Able to calculate the Square box
- Finding the Slope of roof is bit complex

Idea 2 – Automated area calculation of Roof using Drone Shot Images using Reference dimension AruCo markers :-

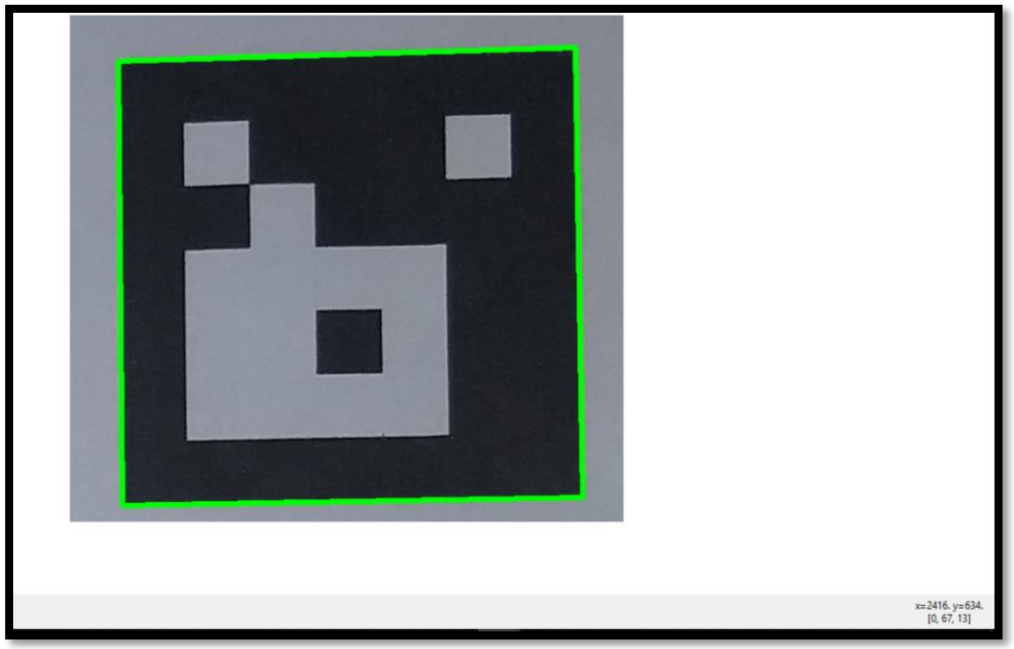
- Access the target from the drone camera
- Allow the Users to crop the boundary
- Extract the image contours
- Calculate the length and width based on contours
- Reference dimension shall be utilized in the image
- Help Link - https://www.youtube.com/watch?v=lbgl2u6KrDU



Feedbacks Noted :-

- Accuracy – 10% deviation shall be there
- Able to calculate the Only Square box as of now
- Including the reference image dimension in roof top and capturing roof shall be complex
- Suitable only for small items

Samples – Using Aruco Markers - Manual Pixel Comparison



Formula for Distance Between Two Points

The formula for the distance, d, between two points whose coordinates are (x_1, y_1) and (x_2, y_2) is:

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Actual dimension :

width 15.4 cm

Height – 7.8 cm

Found dimension :

- width 16.5 cm
- Height – 8.3 cm