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**Colab Notebook Link -**

<https://colab.research.google.com/drive/1_-VHXsV-Oo8PA5AyGKCM2OucyVYL5ws_>

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| --- | --- | --- | --- |
| **Parameters** | **Pothole 1** | **Pothole 2** | **Pothole 3** |
| Input  Image |  |  |  |
| Pothole Depth | 2 cm | 1 cm | 1 cm |
| Picture Size  Field of View  L cm x W cm | 266 cm x 126 cm | 266 cm x 126 cm | 380 cm x 180 cm |
| Frame/Image  Resolution | 1280 x 960 | 1280 x 960 | 1280 x 960 |
| Pixel Size | 0.027  (0.207 x 0.131) | 0.027  (0.207 x 0.131) | 0.055  (0.296 x 0.187) |
| Camera Specifications | Redmi Note 6 Pro. Dual camera consisting of a 12 megapixel primary camera and a 5 megapixel depth sensor. | | |
| Hardware & Software Specifications | Google Colab Notebook used for program execution with -   * GPU: 1xTesla K80 , having 2496 CUDA cores, compute 3.7, 12GB(11.439GB Usable) GDDR5 VRAM. * CPU: 1xsingle core hyper threaded i.e(1 core, 2 threads) Xeon Processors @2.3Ghz (No Turbo Boost) , 45MB Cache. | | |
| Image Capture Height | 3 feet | 3 feet | 4 feet |
| Image Capture Angle | 0 degrees | 0 degrees | 0 degrees |
| Pixel Count for Length | 728 | 733 | 706 |
| Length  L cm | 150.696 | 151.731 | 208.976 |
| Comparison with Actual Values | 146 | 140 | 180 |
| Accuracy (error)  in L | 3.21% | 8.38% | 16.09% |
| Pixel Count for Width | 700 | 501 | 668 |
| Width  W cm | 91.7 | 65.631 | 124.916 |
| Comparison with Actual Values | 80 | 50 | 90 |
| Accuracy (error)  in W | 14.62% | 19.32% | 38.79% |
| Pixel Count for Area | 313813.0 | 192595.5 | 227939.5 |
| Area  (no of black pixels) x (pixel size)  cm x cm | 8472.951 | 5200.07 | 12536.67 |
| Area  (L) x (W)  or  (Pi) x (r) x (r)  cm x cm | 9219.345 | 5470.336 | 14943.644 |
| Accuracy (error)  in Area | 8.09% | 4.94% | 16.10% |
| Orientation Angle | 149.29 | 10.01 | 168.15 |
| Preprocessing  Techniques | * RGB to Grayscale * Median Filtering * Binarization * Dilation | | |
| Segmentation technique | Contour Based Segmentation | | |
| Shape extraction  technique | Bounding Rectangles of OpenCV for fitting Rectangles and Ellipses on the Potholes | | |
| Conclusion | Thus using the above preprocessing techniques, the various shape and geometrical dimensions of the potholes were extracted. They were compared against the actual measured values and used for computing the accuracy/error percentage | | |