







## VI. CONCLUSION AND FUTURE WORKS

In this paper, we have discussed how clustering can be an efficient method to generate maps for mobile robots in an indoor environment. Using  $k$ -means algorithm, we showed that this method is very simple, powerful and efficient technique to generate straight line maps. Results obtained from the experimental results proved how the number and size of the clusters can be varied to generate different size clusters with mean points. We also showed how straight lines maps can thus be obtained from joining these mean points and discussed results for different number of clusters. As for the limitation, noise affects the clustering and hence noise reduction and data reduction is helpful in getting an accurate clustering.

The immediate future work would be to apply more efficient clustering algorithms and combining them to produce maps with higher accuracy. Also improving the computational efficiency of the algorithm and applying it in more complex environment would be the work in the future.

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