

**CONSTRUCTION OF ROUNDABOUT DESIGN USING CUBIC
TRIGONOMETRIC B-SPLINE BASIS FUNCTION**

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ABSTRACT

The roundabout is type of circular intersection in which traffic can only flow in one direction around a central island. Roundabouts can improve traffic flow by maintaining a continuous flow of traffic because vehicles do not need to stop when there is no conflicting traffic. However, because of an improper priority system, they can develop into major bottleneck points as traffic rates rise, leading to significant delays during periods of high circulation. So, design of roundabout is important for traffic flow to run smoothly. Their many methods can be used to design roundabout, but CAGD (Computer-Aided Geometric Design) is the best method because it able to precise and accurate geometric shapes for the roundabout. It is because it has advantages of creating smooth curve which is suitable for design roundabout. Cubic trigonometric B-spline basis function been chosen for basis function in design roundabout. It is a spline that combines cubic B-spline and trigonometric functions which is suitable for design roundabout cause it a powerful mathematical instrument for crafting curves possessing favourable attributes like smoothness, flexibility, and local control. The objective of this study is to design roundabout using the cubic trigonometric B-spline with difference shape of parameter, obtain smooth curves for the design of the roundabout and determine the best shape parameter used in the design of the roundabout. The results of this study show shape parameter equal to 1 have the best results compared to rest of shape parameter which is prove it the most suitable shape parameter to design roundabout.

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