

**COMPARISON IN APPROXIMATING MAXIMUM SPEED ON
ROAD BETWEEN CUBIC BEZIER CURVE AND CUBIC
TRIGONOMETRIC BEZIER CURVE WITH A SHAPE
PARAMETER.**

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JULY 2019

DECLARATION BY CANDIDATE

We certify that this report and the project to which it refers is the product of our work and that any idea or quotation from the work of other people, published or otherwise are fully acknowledge in accordance with the standard referring practices of the discipline.



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ABSTRACT

This project describes an alternative way in estimating design speed or the maximum speed allowed for a vehicle to drive safely on a road using curvature information from Bezier curve and Cubic Trigonometric Bezier curve fitting on a map. The road in Tanah Rata Cameron Highland, Malaysia was chosen. The values of the curvature were computed by analytical differentiation of the Bezier Curve and Cubic Trigonometric Bezier Curve continuity between joined curves in the process of mapping the road. When the value of curvature is high, the value of radius becomes smaller thus the vehicle needs to bend sharply. The result was verified with the manual calculation of the curvature from the map. The objective of this research is to conclude the curvature information and determine which the best method between Cubic Bezier curve and Cubic Trigonometric Bezier curves with the goal of approximating the maximum speed of road. The comparison between two methods show that both methods produced the best maximum speed for the real road. However, after doing the readjustment, Cubic Trigonometric Bezier is the best method and able to produce best speed of road.

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