UNIVERSITI TEKNOLOGI MARA

TECHNICAL REPORT

GENERATION OF THE BATIK TERENGGANU MOTIFS USING BÉZIER CURVE AND DEJDUMRONG CURVE

NURALEA NATASYA BINTI AMIR HAMDAN (2020834342)
NUR FATIN NATASYA BINTI RAMDZAN (2020898372)
NURUL AIN NABILA BINTI MOHAMAD LATIF (2020898274)
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ABSTRACT

Batik Terengganu is a traditional Malaysian textile art form known for its intricate motifs and vibrant colors. The process of creating Batik Terengganu motifs typically involves skilled artisans' hand-drawing the designs on fabric using a canting, a tool for applying wax resist. However, this manual process is time-consuming and limits the exploration of complex designs. This project aims to bridge the gap between traditional craftsmanship and digital design techniques, offering a means to preserve and extend the art of Batik Terengganu. In this project, the objective of the study is to generate Batik Teregganu motifs design by using Bezier curve and Dejdumrong curve from degree 2 until degree 5, while also to identify the best curve to represent Batik Terengganu motifs design. Based on this analysis, this study will develop a parametric model that allows for the generation of diverse motifs. To generate the motifs, the Bézier curve and Dejdumrong curve algorithms will be employed. The Bézier curve, with its control points, will enable to create curves with precise control over the shape and direction. The Dejdumrong curve, known for its ability to generate smooth and natural-looking patterns, will be utilized to enhance the organic feel of the motifs. To implement the project, MATLAB software that provides an intuitive interface for users will be developed to interactively design and generate Batik Terengganu motifs. Users will have the ability to define the control points, generate Bézier and Dejdumrong curve, adjust curvature, combine and plot the curves and customize the motifs. The output of the MATLAB software will be high-resolution digital representations of the generated motifs, which can be further processed for printing onto fabric or used as a reference for manual artisans. In conclusion, the objective of this study were achieved where the Batik Terengganu motifs of degree two until degree five has been generated and the study has identified that the best curve of Batik Terengganu motifs is Bézier curve of degree five. However, if future researchers wish to explore alternative methods to obtain curves different from Dejdumrong curve, they can consider other methods in CAGD like Said-ball and Wang-ball curve and also recommend for the future researcher to explore the fascinating concept of generating nests for example *sarang burung tempua* by using curve that we applied.