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The Development of a Portable Electrical Engineering Educational Outreach Toolkit

Keishan Narinesingh[a, Ψ], Sanjay Bahadoorsingh [b], and Chandrabhan Sharma [c]

Department of Electrical and Computer Engineering, Faculty of Engineering, The University of the West Indies, St. Augustine, Trinidad and Tobago, West Indies;
[a]E-mail: keishan.narinesingh@my.uwi.edu
[b]E-mail: Sanjay.Bahadoorsingh@sta.uwi.edu
[c]E-mail: Chandrabhan.Sharma@sta.uwi.edu

[Ψ] *Corresponding Author*

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Abstract: *A strong STEM (science, technology, engineering and mathematics) workforce is central to economic growth and development. To build such a workforce, there is need to promote STEM disciplines. This paper describes the use of a portable electrical engineering outreach toolkit that targets primary and secondary students. The Outreach Toolkit contains 1) a Van De Graff Generator, 2) Tesla Coil, 3) Joule Thief and 4) a Combinatorial Logic Designer Board. Based on the electrical engineering theory and principles as required by the primary and secondary school curricula, live demonstrations are to be conducted using these devices. Complemented with the Toolkit, there are user manuals and a suite of videos that describe various experiments, safety precautions and maintenance requirements. For evaluating the efficacy of the toolkit, a group of 1 primary and 1 secondary schools from the South Eastern Education District of Trinidad and Tobago was based, and their students and teachers were invited to participate a demonstration of the toolkit. Results showed that majority of the secondary school students (90%) indicated that the use of the toolkit could increase their interests in studying science. Some 95% of students indicated that the toolkit made learning science more fun and motivational, and would like to have the device equipped at their school.*

Keywords: *STEM, Combinatorial Logic Designer Board, Educational Outreach Toolkit, Trinidad and Tobago*