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Design and Implementation of an Automated Production Line in Handloom Industry in Galle

Alupotha R. P. G. R. S., Ratnayake R. M. T. R., De Silva P. M., Ambawatte H. C.*,
Karunasena H. C. P. and Gunawardana S. D.

*Department of Mechanical and Manufacturing Engineering, Faculty of Engineering,
University of Ruhuna*

** Corresponding Author: clithral@mmme.ruh.ac.lk*

The Handloom Textile Industry in Sri Lanka has a centuries old history. This tradition of handloom weaving has been brought down from generation to generation in the country but still it uses the traditional methods and machineries for the weaving process. Although the industry has spread along the southern coastal area and also it has a good demand for the products from the tourists and the natives, the current production process is incapable to meet the increasing demand with traditional technologies.

The market for the handloom industry mainly depends on the hand weaved products. By this project, it is targeting to upgrade and optimize pre-production processes without interrupting the manual weaving process. As observed by the time study, the bottle neck points of bobbin winding and fern winding are the most time consumable per-processes and also the warp beaming method should be improved.

Through the project it's able to reduce the time consumption for the bobbin and fern winding, up to 50%. By the proposed single step method of warp beaming on behalf of two step method, it's expected to up lift the beam quality and reduce the time by 30%. As the future works, it could be able to establish warp beam centers and introduce fully automated bobbin, fern winding and warping processes, which specializes to produce warp beams and distribute them to the individual weavers who can deploy their full time for weaving.

Keywords: handloom industry, bobbin, fern winding, warp beaming