RURAL TECHNOLOGY DEVELOPMENT CENTRE

GOVERNMENT COLLEGE OF ENGINEERING KANNUR

DESIGN AND DEVELOPMENT OF A LOW-COST NOISE ENCLOSURE FOR POWER LOOMS

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ABOUT THE PROJECT :

Kannur, the land of looms, is a place where many people depend on power loom industry for their livelihood. There are around 700 power looms in Kannur district, operated by many small and medium scale textile industries. This industry is under threat of closure because of the noise issues and the opposition from the people living in the surrounding areas.

One of the main factors that hinters the development of this industry is the excessive noise levels associated with the power loom. Studies have shown that the noise level in looms go up to 100 dB(A) which has serious impacts on health of the workers and people living nearby these industries.The government of India has imposed rules to limit the sound levels to 75 dB(A) and 70 dB(A) respectively during day time and night time for industrial areas, whereas 55 dB(A) and 45 dB(A) for residential area.

OBJECTIVES :

1. To carry out numerical and experimental investigation of sound pressure levels (SPLs) reduction in power loom units.
2. To design a partial noise enclosure of optimal geometry with locally available materials to minimize the sound pressure levels.

OUTCOME :

The research on design and development of low-cost noise enclosures for power looms is progressing well. Simulations using COMSOL Mulitphysics have been completed. Samples of natural fibre composites are to be prepared as per the standards. The noise characteristics such as sound absorption coefficients and sound transmission loss of these materials are to be obtained. Effects of thickness and composition on the acoustic properties need to be investigated. From the results, an appropriate material with an appropriate size (thickness) can be chosen for fabricating the noise enclosures.