Finite Element Structural Analysis of a Low Energy Micro Sheet Forming Machine
Concept Design
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It is forecasted that with the miniaturization of materials being processed, energy consumption will also be 'miniaturized' proportionally. The aim of this research is to design a low energy micro-sheet-forming machine for the application of thin sheet metal. A few concept designs of machine structure were produced. With the help of FE software, the structure is then subjected to a forming force to observe deflection in the structure for the selection of the best and simplest design. Comparison studies between mild steel and aluminium alloys 6061 were made with a view to examine the most suitable material to be used. Based on the analysis, allowable maximum tolerance was set at 2.5µm and it was found that aluminium alloy 6061 suffice to be used.