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Design of a Child Restraint System for Motorcycles

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Abstract:
In developing countries, children riding on a motorcycle as a pillion or driver are very common despite restriction by law for the driver. Children as motorcycle pillions or riders are more vulnerable. They are vulnerable to hazard on lower limb and falling from the motorcycle due to a lack of stability. This paper is focused on designing a child restraint system for motorcycles with an engine capacity of 100–150 cc that can secure the safety of the child passenger from aged 2 to 5 years old and being able to support a maximum child passenger of 20 kg weight. The methodology used in designing this product includes house of quality, morphological chart, weighted objective analysis, sketching, concept design, CAD modelling, finite element analysis and prototyping. The result of the design is able to withstand the child maximum weight of 20 kg and was successfully installed at a Modenas KRISS.