

Implementation of a Multicriteria Analysis Model to Determine Anthropometric Characteristics of an Optimal Helmet of an Italian Scooter



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Abstract At the beginning of the sixties, the Italian scooters became popular in Italy, an age that was considered unimportant the safety of people. However, safety standards are now stronger, and helmet use is mandatory in most countries. That is why this paper try to analyze in greater detail the characteristics associated with the anthropometric measurements of a representative sample of a broader society for determining the ideal characteristics of a helmet associated with this type of vehicle. For this reason and considering the relevance of our study to a Smart City, we will use a multicriteria analysis and an intelligent data analysis in order to understand much better the ideal and suitable measurements to be able to design a helmet for an Italian scooter.

Keywords Italian scooter · Optimal and ideal helmet · Smart city

1 Introduction

An accepted definition for an Italian scooter is: “(1) has a platform for the operator’s feet or has integrated footrests, and (2) has a step through architecture, meaning that the part of the vehicle forward of the operator’s seat and between the legs of an operator seated in the riding position, is lower in height than the operator’s seat” [1]. Nevertheless, because of the similarity to motorcycles, regulations in some countries do not differentiate between motorcycles and scooters [2]. As the time pass through, terms have changed, but in the first apparitions of scooters in the market, “the gendered connotations of the term ‘scooter’ were deliberately accentuated in the design and marketing of the original Vespa and Lambretta scooters in Italy. The design made concessions to the rider’s comfort, convenience and vanity (the enveloping of machine parts meant that the scooterist was not obliged to wear specialist protective clothing)” [3]. But there can exist a lot of accidents that can occur while driving a

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