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Conceptual project of a radio controlled aircraft in the SAE Brazil Aerodesign competition requirements

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In mechanical engineering, the possibility of developing conceptual designs before building a prototype makes the process faster, more flexible and at a lower cost, enabling various tests, changes and improvements in the initial project. The construction of radio controlled aircraft is interesting for the technological growth of the engineering area, and competitions such as the one promoted by SAE Aerodesign enable the development of multidisciplinary projects involving various skills and students from different courses making them exercise their entrepreneurial skills and acquisition of new knowledge. This work aimed to elaborate a conceptual design of an aircraft based on the requirements defined by the SAE Brazil Aerodesign 2020 competition regulations, as well as its structural and aerodynamic analyses. After preliminary studies of the regulations and results from the winning teams of the last competitions, the parameters were defined and the conceptual project was elaborated and the preliminary structural and aerodynamic analyses were performed. With these results it was possible to define the design of the radio controlled aircraft meeting the requirements of the SAE Brazil Aerodesign competition for regular class, enabling the construction of the prototype and the start of the first competition team at ISECENSA.

Keywords: aircraft; aerodesign; conceptual design; simulation.

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