

Final Thesis

„Design of photovoltaic off-grid systems with second-life batteries: a case study from riverside communities in the amazon“

(in cooperation with UFAM)

Topic Description:

The e-Controls team from the Federal University of Amazonas (UFAM) is investigating the application of second-life batteries from electric vehicles in the designing of off-grid systems with photovoltaic panels. The use of those batteries reduces the costs of the most expensive component of those off-grid systems, however there still several uncertainties regarding the remaining useful life (RUL) and state of health (SoH) and how they can impact the feasibility of the design. During this thesis, it is expected to perform a feasibility analysis considering the economical and technical aspects of those off-grid systems adopting a case study riverside communities in the state of Amazonas, Brazil.

Tasks:

- Literature review on Li-ion batteries (in particular, second-life batteries) and the key parameters
- Characterization of second-life batteries and estimation of their SoH
- Sizing and design of photovoltaic off-grid systems considering the use of second-life batteries for riverside communities in the amazon
- Feasibility analysis of off-grid systems with PV panels and second-life batteries in amazon communities considering technical and economical aspects

Your Profile:

- Study of Electrical Engineering or Computer Engineering
- Interested in renewable energy systems
- Willingness to cooperate and travel internationally
- Fluent in written and spoken English language
- Confident use of MS Office

Are you interested? Please contact us!

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