



Portable wind turbine for digital nomads

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Interdisciplinary Product Development (M.Sc.)



Fig. 1: Weather-dependent powersupply as digital nomad living in a camper van

Problem statement

Working independently as a digital nomad, especially from a camper or van, requires a reliable energy supply to power electronic devices. While solar power is a common solution for mobile energy supply, it is not always ideal due to variable weather conditions (Fig. 1).

Approach

To provide a reliable energy source for digital nomads the objective was to explore wind power as an alternative energy solution for charging electronic devices while prioritizing ease of use and portability. Through a systematic approach the project team evaluated various turbine designs and criteria, ultimately selecting a Savonius rotor configuration based on utility value analysis and practical testing.

Practical implementation

The developed turbine (Fig. 6) features a lightweight and foldable textile rotor (Fig. 2 + Fig. 4), a two-part removable center pole, a generator, a tripod ground attachment reinforced with tension ropes, and an electronic unit for power supply and rotor brake controll (Fig. 3). Furthermore, user-friendly transportation of the system was established (Fig. 5).



Fig. 2: Deploying process of the rotor during assembly

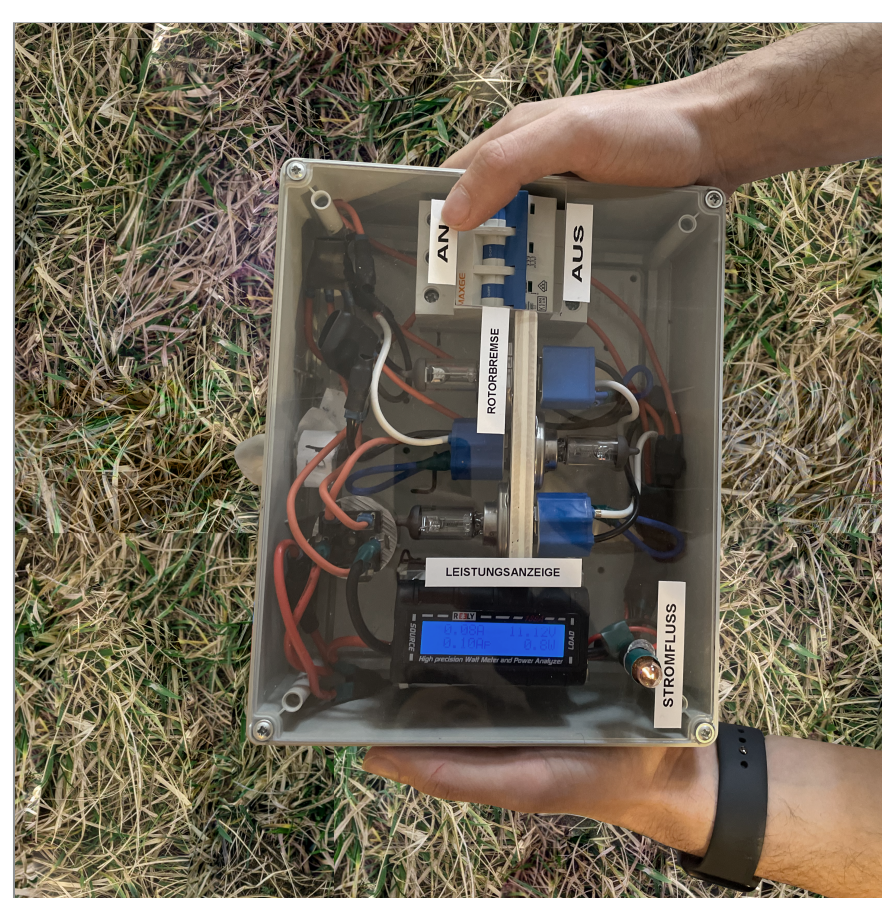


Fig. 3: Electronic unit for power supply monitoring and rotor brake



Fig. 6: Functional model of a portable wind turbine with textile components



Fig. 4: Textile rotor consisting of windproof fabric and reflective details



Fig. 5: Transport packaging of the wind turbine system

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