



Tensile torque transmission system of the Windswept & Interesting tethered airborne wind turbine (5 September 2016)



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Modelling and Simulation Studies of a Networked Rotary Kite System

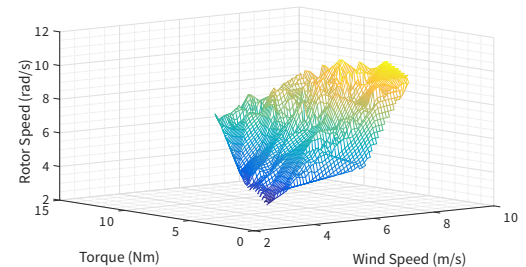
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Windswept and Interesting Ltd. (W&I) has been developing an open source rotary Airborne Wind Energy System (AWES) for several years. The Daisy Kite was developed using a minimalistic design approach. The network of standard lightweight kites and lines generates continuous power and provides redundancy for enhanced safety. The airborne components weigh under 2 kg, making the Daisy Kite a portable off grid solution. Several Daisy Kite prototypes have been produced, the most recent one is depicted in the figure together with test results. Experimental work is continuing to provided greater understanding of the concept and its operating strategy. It has highlighted the need for more accurate control over the power take off. At present the only control is provided by a mechanical brake.

Previous development of the Daisy Kite has mostly relied on experience gained from field tests for making alterations to the design. To explore the fundamentals behind the Daisy Kite design a aerodynamic model of the system has been produced. This model focuses on the steady state response of the system. The experimental data from the most recent prototype has been compared to the results produced by the aerodynamic model. Models using the CAD package Rhino were used to explore networked kite stability. This has provided an insight into the scalability of the Daisy Kite design and methods for improving its safe and efficient operation [1].



The most recent Daisy Kite prototype undergoing tests and measurement data (June 2017).

References:

- [1] O. Tulloch, H. Yue, J. Feuchtwang, R. Read: "Modelling of a Rotary Kite Airborne Wind Energy (AWE) System". SUPERGEN Wind Hub General Assembly. Cranfield University, 23 November 2016. <https://www.supergen-wind.org.uk/files/GANov2016/OT%20Poster%20Strathclyde.pdf>