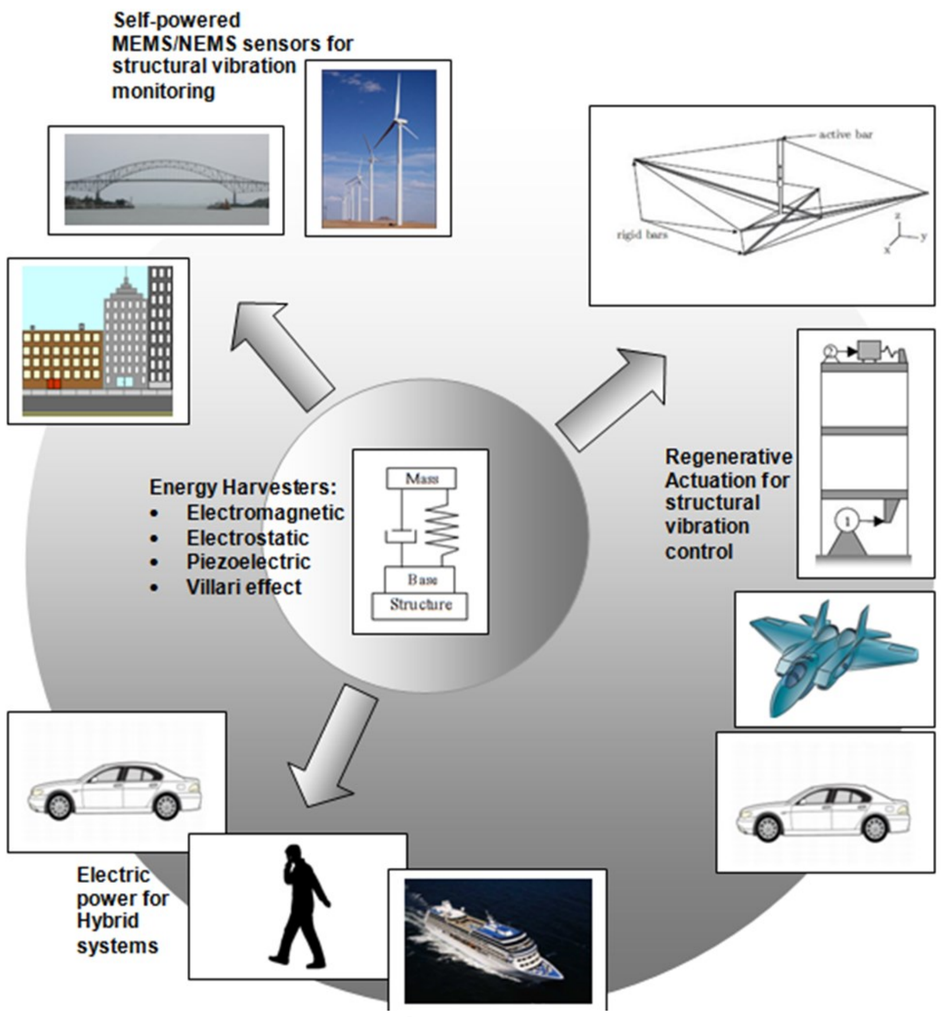
Self-Powered Dynamic Systems [1]-[7]

A dynamic system powered by

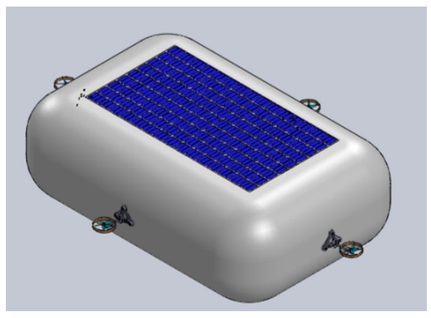
- Its own unwanted kinetic energy
- Renewable energy
- Combination of above

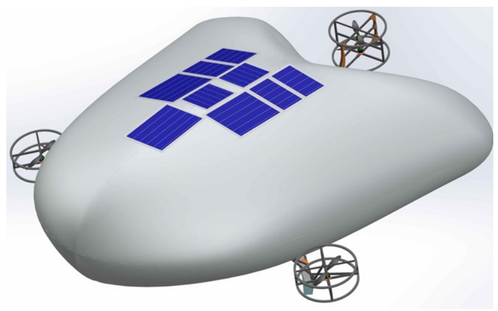


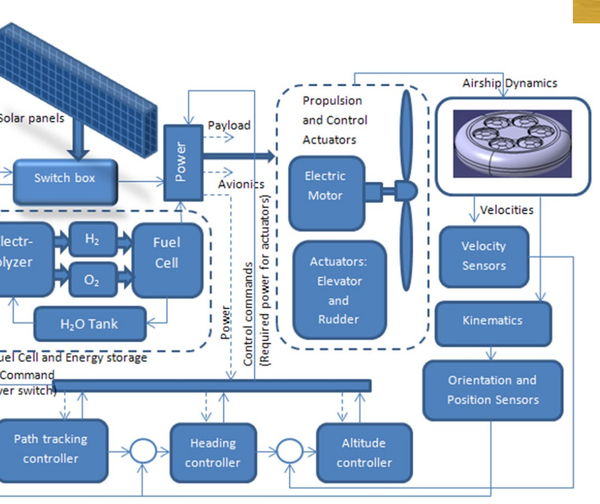
Applications

Brunel Solar Powered Autonomous UAVs [1]-[7]

Towards Infinite Endurance UAVs..

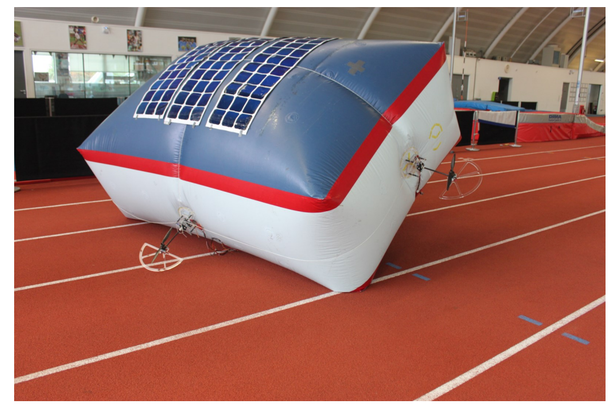


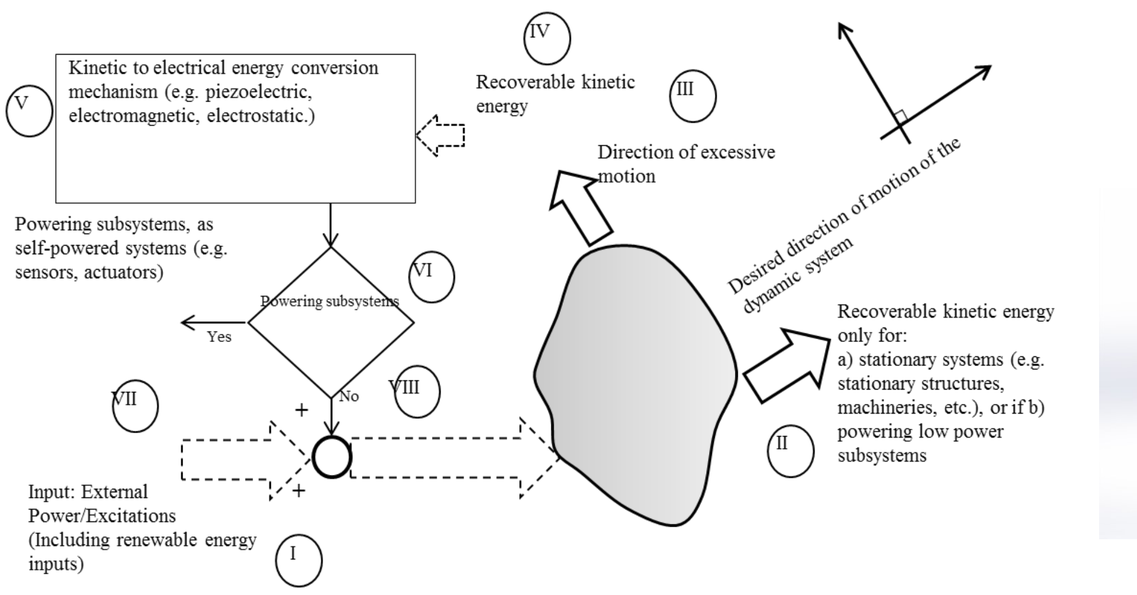




Brunel Sunship

Towards the most energy efficient UAV..

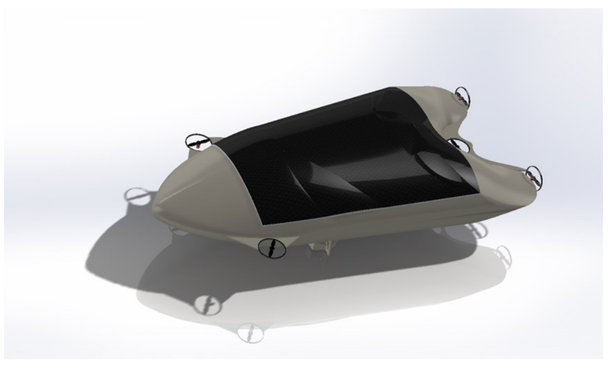




Solar-Powered Autonomous Airship Projects

MEng Students: Zhiyar Zand, Dhiran Patel, Kyrillos Wasely, Anshu Shrestha, Elvis Kongolo, and Robert Lamb, Glass, G., Terbuc, N., Phillips, D., Guler, D., Warden, C., Wong, K., Farah, M., and Cheung, D., Salsbury, O., Raineri, D., Morreale, G., Taylor, T., Sutch, D., and Elyon, P.

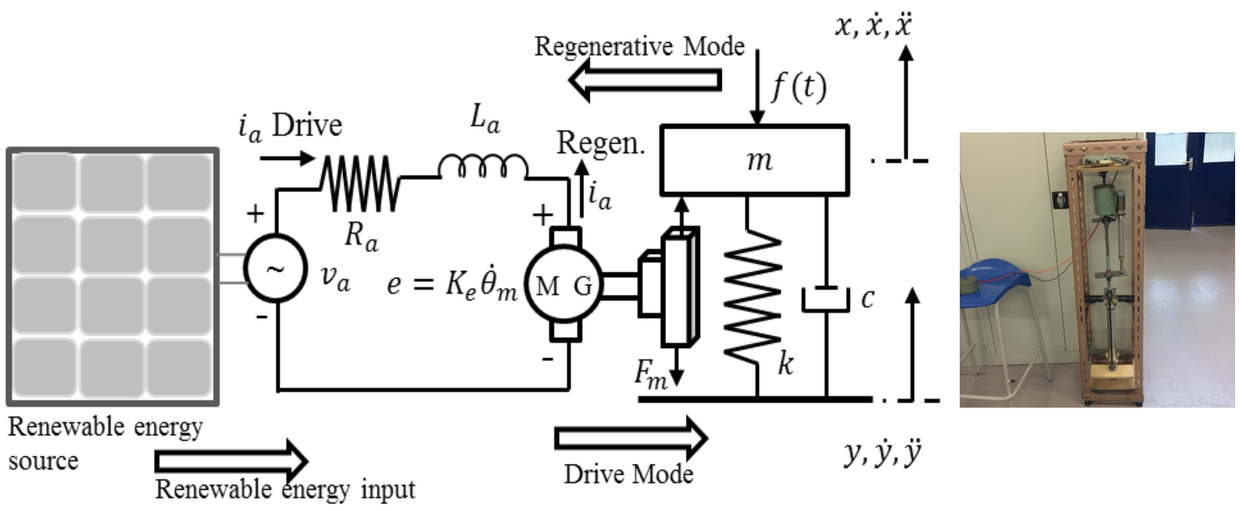
YouTube Videos: Search Keyword is Farbod Khoshnoud (the name of the author)



Solar Aircrafts

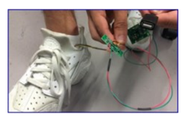
MEng Students: Bilal Sheikh, Weng Maton, Lovedeep Bajwa, Tiago-Mateus Korynek

The concept of Self-powered Dynamic Systems [1]-[7]



Projects with Dr. Mohamed Darwish and Dr. Zahir Dehouche

Energy from human motion for powering small electronic devices



Students: Behdad Ghavami, Rayan Bayraktar, Ajay Joseph, Dhari Alzaabi, Omer Mohammad, Simon Grundy , Ali Maasoumian

In collaboration with Professor Chris Bowen

Piezoelectric energy harvesters

References:

[1] Farbod Khoshnoud, Clarence W. De Silva, Ibrahim I. Esat, et al., **Mechatronics: Fundamentals and Applications, (**chapter: **Self-powered and Biologically Inspired Dynamic Systems),** *Taylor & Francis / CRC Press*, 2015.

[2] Farbod Khoshnoud, Clarence W. de Silva, Houman Owhadi, et al., **Self-Powered Dynamic Systems,** European Conference for Aeronautics and Space Sciences, Munich, Germany, Paper No. 275, 1-5 July 2013.

[3] Our Wikipedia page: http://en.wikipedia.org/wiki/Self-powered_dynamic_systems

[4] Farbod Khoshnoud, G. Pissanidis, Clarence W. De Silva, et al., **Energy regeneration from suspension dynamic modes and self-powered actuation**, *IEEE/ASME transaction on Mechatronics*, Volume: 20, Issue: 5, pp. 2513 - 2524, 2015.

[5] Farbod Khoshnoud, Clarence W. De Silva, Ibrahim Esat, et al, Solar-powered Autonomous Airships: Towards Infinite Endurance UAVs, submitting.

[6] Farbod Khoshnoud, Houman Owhadi, Clarence W. De Silva, Ibrahim Esat, Self-powered Dynamic Systems in the framework of Optimal Uncertainty Quantification, submitted.

[7] Farbod Khoshnoud, Ibrahim Esat, Richard H.C. Bonser, Clarence W. De Silva, Michael M. McKerns, Houman Owhadi, **Self-powered and Bio-inspired Dynamic Systems: Research and Education**, Proceedings of the ASME's International Mechanical Engineering Congress, 2016.