Bridge Construction using Quad Copter Technology



As technology progresses, it is exciting to see and envision the possibilities for application. This video, filmed at the Institute for Dynamic Systems and Control focuses on:

- Physical human-quadrocopter interaction and contact with the environment
- Aerial assembly of tensile structures

Visit the site to see the project here:
http://www.idsc.ethz.ch/research-dandrea/research-projects/aerial-construction.html

> The pursuit is multidisciplinary, requiring the development of nonstandard material systems, advanced digital design and construction processes, and adaptive strategies for controlling the aerial robots as they interact with their environment and cooperate in the assembly task. Because the structures produced in this framework will be less constrained by conventional assembly parameters (such as, for example, the need of scaffolding to build from the ground upward), we expect that our work will foster new forms of architecture and construction methods [1].

This stands out to me, as despite it's current limitations and constraints around this experiment, I cannot help but extrapolate to what will be available in 5 years. Think of mountain rescues, disaster relief, humanitarian uses in transport or accessibility. This is a great concept with significant potential to benefit society. Of course, it is also amazingly cool when you consider the programming and design that went into it. The algorithms for the flight patterns and collision avoidance are achievements with many applications as well.

[1] F. Augugliaro, S. Lupashin, M. Hamer, C. Male, M. Hehn, M.W. Mueller, J. Willmann, F. Gramazio, M. Kohler, and R. D'Andrea, "The Flight Assembled Architecture Installation: Cooperative construction with flying machines", IEEE Control Systems Magazine, Volume 34, Issue 4, 2014, pp. 46 – 64