

## Challenges of Starting and Maintaining an R&D Company

Dr. Jeremy Steinshnider

Commercialization Forum

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### Abstract:

This presentation seeks to provide perspective on the challenges and opportunities associated with starting, maintaining, and growing a small research and development company. Topics will include an overview of sources of start-up funding, general day-to-day business operations, working with private and government customers, and pitfalls to avoid. Special emphasis will be given that focuses on the challenges of attempting to go the SBIR/STTR route for growing a new business.

## Fuel Cell / Battery Hybrid Power Systems for Unmanned Systems

Dr. Jeremy Steinshnider

MSEC Seminar

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### Abstract:

Unmanned systems are becoming increasingly important for military and commercial sectors. Current battery technology is unable to provide necessary time of operation for some ground mobile robotic platforms, resulting in a strong desire for longer lasting power sources. Lithium-based rechargeable and primary battery chemistries are at the limits of performance with only slight gains seen in the foreseeable future. Fuel cells have offered the potential to significantly improve energy storage density if a viable fuel or hydrogen storage method is found, but they have also been limited by their power density for applications such as UGV's and MAV's, in which both power and lightweight energy storage is needed. For unmanned systems to become a practical tool for either tactical or reconnaissance missions, a leap in power density and energy storage density is needed. Fuel cell and hybrid power systems are now coming into maturation. This system will allow a UGV to perform for longer durations before refueling. Developing this novel micro fuel cell power system will provide a critical tool with which warfighters can maintain battlespace awareness and ensure force protection.

## Dr. Jeremy Steinshnider

### Education

B.S. in Physics, University of North Texas, 1993

Ph.D. in Physics, Texas A&M University, 2002

### Work History

2009 – Present    Founding Partner, JSJ Technologies LLC

2009 – 2010      Research Full Professor, Lamar University

2008 – 2009      Director of Fuel Cell Technology, Lynntech, Inc.

2004 – 2009      Senior Research Scientist, Lynntech, Inc.

2002 – 2008      Research Scientist and Group Leader, Lynntech, Inc.

1994 – 2001      Research Assistant, Texas A&M University

### Brief Bio

Dr. Steinshnider has been active in the field of hydrogen fuel cells for ten years and previously held the position of Director of Fuel Cell Technology at Lynntech Inc, where he was the Principal Investigator on numerous SBIR and non-SBIR government and commercial programs. After leaving Lynntech, Dr. Steinshnider took a Research Full Professor position at Lamar University. While at Lamar University, he formed a start-up company, JSJ Technologies, with two other research professors. In the two and half years since forming the company, JSJ Technologies has established a number of strategic partnerships with universities and companies worldwide.