

B3-2

Development of a Chemical Hydrogen Supply System with Fuel Cell for UAV System

The objective of this research is to enhance the performance of UAV system by applying a chemical hydrogen fuel cell. The research is;

- To study the characteristics of chemical hydrogen fuel cell for the UAV application
- To overcome limitations and problems of the power system
- To establish optimum operational scenario and suitable UAV system
- To verify technical achievement through flight tests

Goal

Development of a Chemical Hydrogen Fuel Cell UAV System

- Study for the application of chemical hydrogen supply system with fuel cell to a UAV system
 - Trouble shooting through environmental tests such as temperature and vibration
 - Interface design between the chemical hydrogen fuel cell and the UAV platform
 - Design of operational scenario and system to have optimum performance
- Development of a UAV system driven by a chemical hydrogen supply system with fuel cell power
 - Power and thrust system development
 - Development of a long endurance UAV platform
 - Subsystem development and design development tests
 - Final assembly and flight tests
 - Generation of technical data package and building up of a strategy for commercialization

Objective

- 1st year
 - Physical and functional analyses of the chemical hydrogen supply system with fuel cell to be applied to a UAV system
 - Establishment of operational capability and system design
 - Establishment of detailed development plan
- 2nd year
 - Basic design of power and thrust system, and setting up of a test bed
 - Preliminary design and design data gathering for a UAV platform development (wind tunnel test, etc.)
 - Design development tests
- 3rd year
 - Critical design
 - Components fabrication and performance tests
 - Preparation for total assembly and flight test

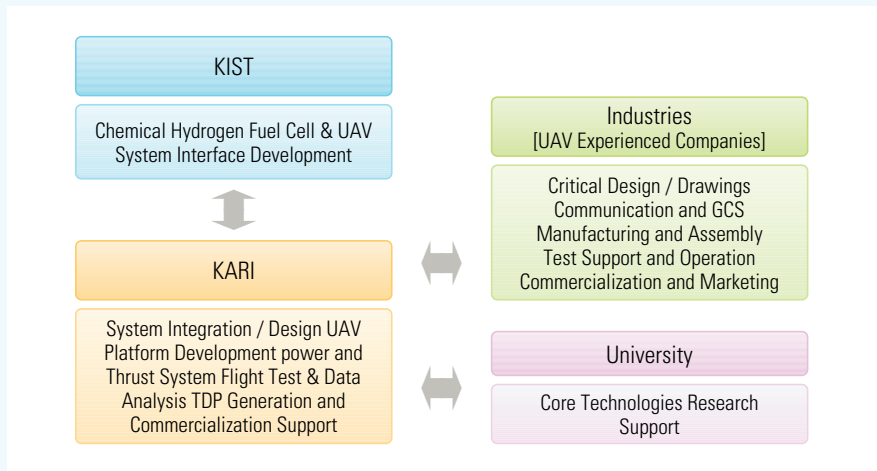


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- 4th year
 - Total assembly, ground integration test, and flight test
 - Test data analyses and evaluation of technical achievement
 - Modification/Make up and derivation of technical items to be improved
 - Establishment of commercialization plan

Strategy



Outcomes & benefits

- Ensure a unique technical position in the field of UAV which maximizes the advantage of chemical hydrogen fuel cell
- Secure a leading position in the technology of electrical power driven UAV system
- Enhance the national pride in worldwide advanced technology competition of green energy aircraft
- Acquire a marketing superiority based on the long endurance performance
- Develop international market and achieve import substitute effect through commercialization



Electrical Power Driven UAV Platform