# EMBRY-RIDDLE HYDROGEN

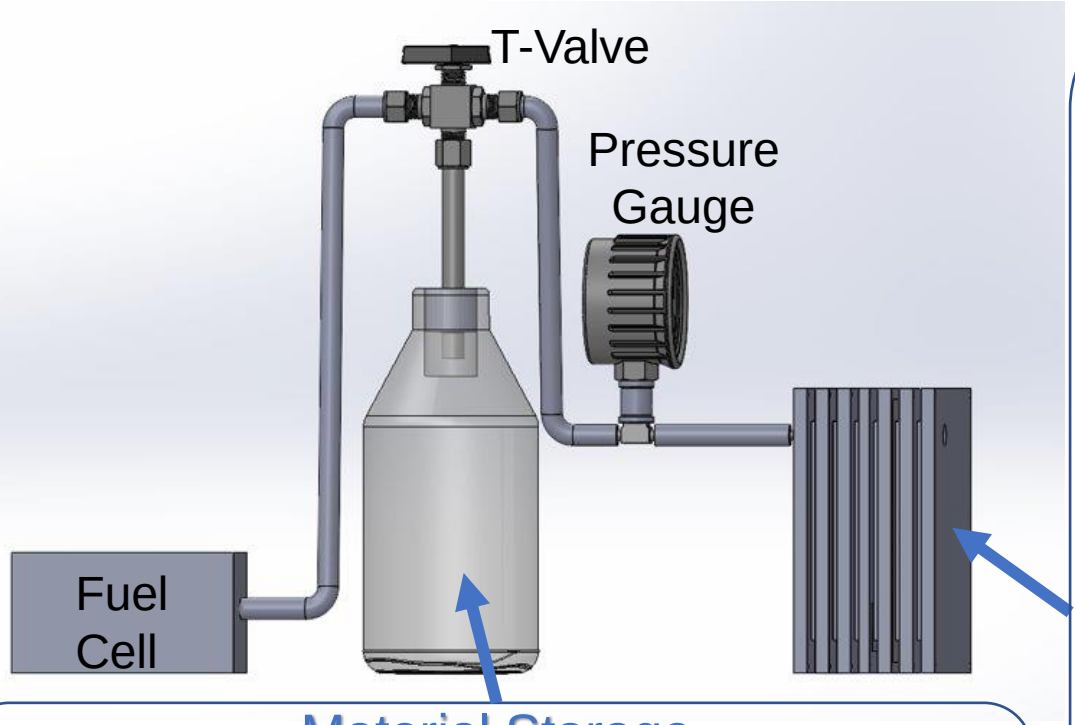
## Objective

Generate and store minimum 0.02 grams of hydrogen every ten minutes to run Embry-Riddle fuel cell as an educational demonstrator.

## Key Requirements

1. Produces 0.02 grams of $H_2$
2. Runs the fuel cell for 10 mins
3. Stores 0.04 grams of $H_2$
4. Internals must be visible

## Team



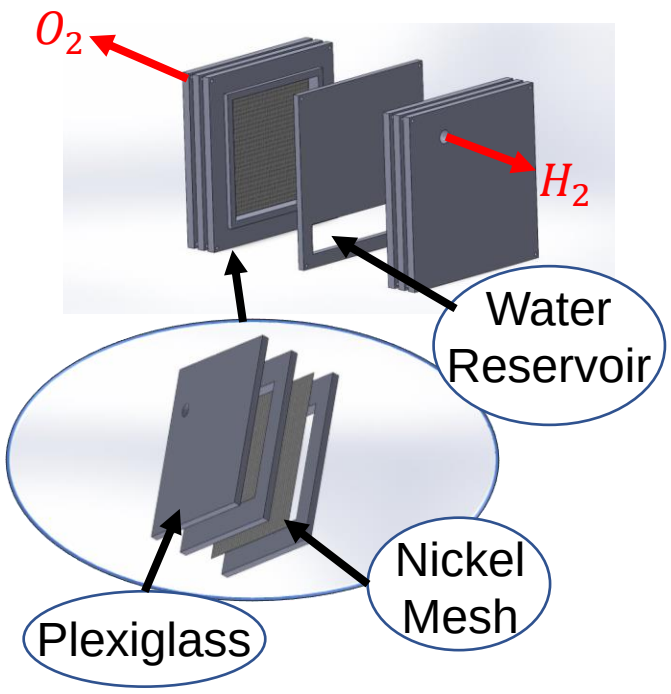

## Material Storage

Lithium-Doped Graphitic Carbon Nitride can hold 10% wt hydrogen and releases hydrogen at 300°C [1]. The material will be heated using a Nichrome wire and power source

## References

A. Murali, M. Sakar, S. Priya, R. J. Bensingh, and M. A. Kader, “Graphitic-Carbon Nitride for Hydrogen Storage,” in *Nanoscale Graphitic Carbon Nitride*, Elsevier, 2022, pp. 487–514. doi: 10.1016/B978-0-12-823034-3.00017-0.

## Alkaline Electrolysis




Electricity flowing through two nickel mesh plates splits water into $H_2$ and $O_2$. The $H_2$ flows through the system and the $O_2$ is dispersed. The $H_2$ produced will be measured using a pressure gauge.