

# IPRO 301

# Solar Hydrogen Hybrid System


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Friday April 30, 2004


# Team Members

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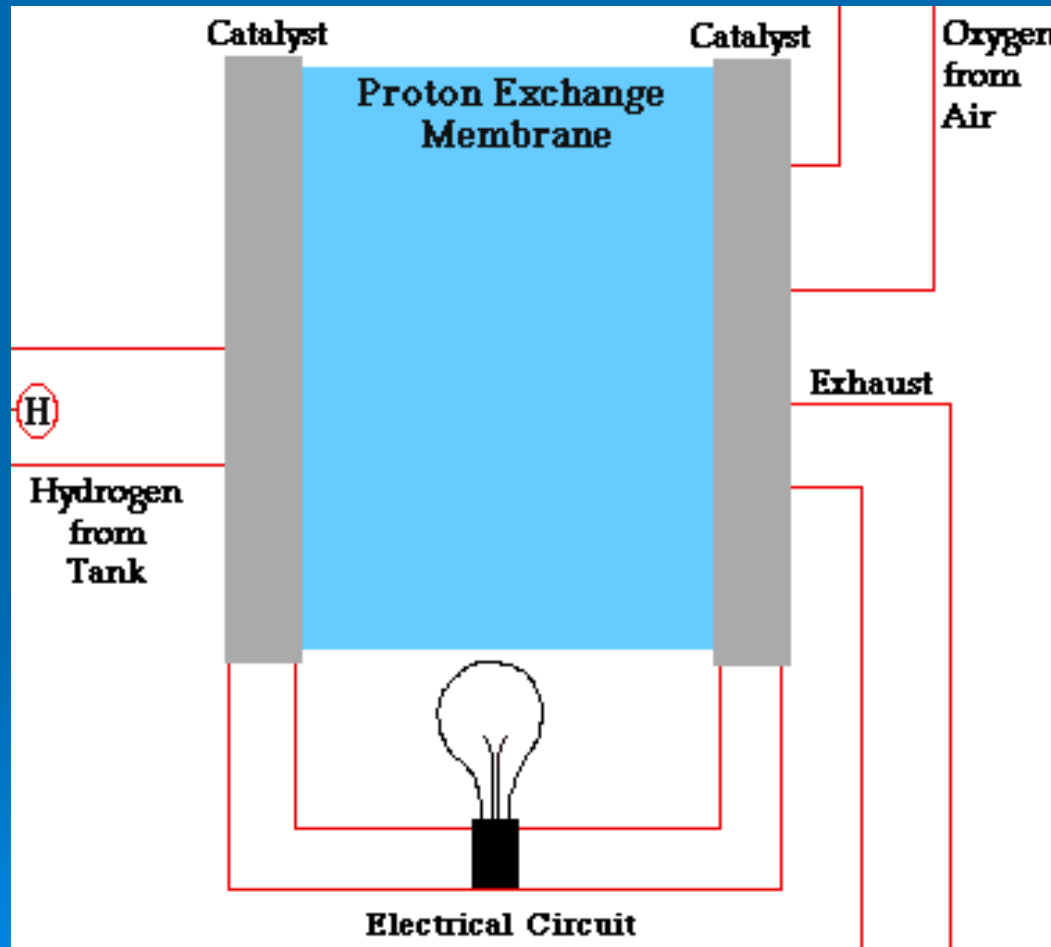
# Overview

- Project Description
  - Project Components
  - Our Problem
  - Our Goals
  - Idea Implementation
  - Conclusions and Recommendations
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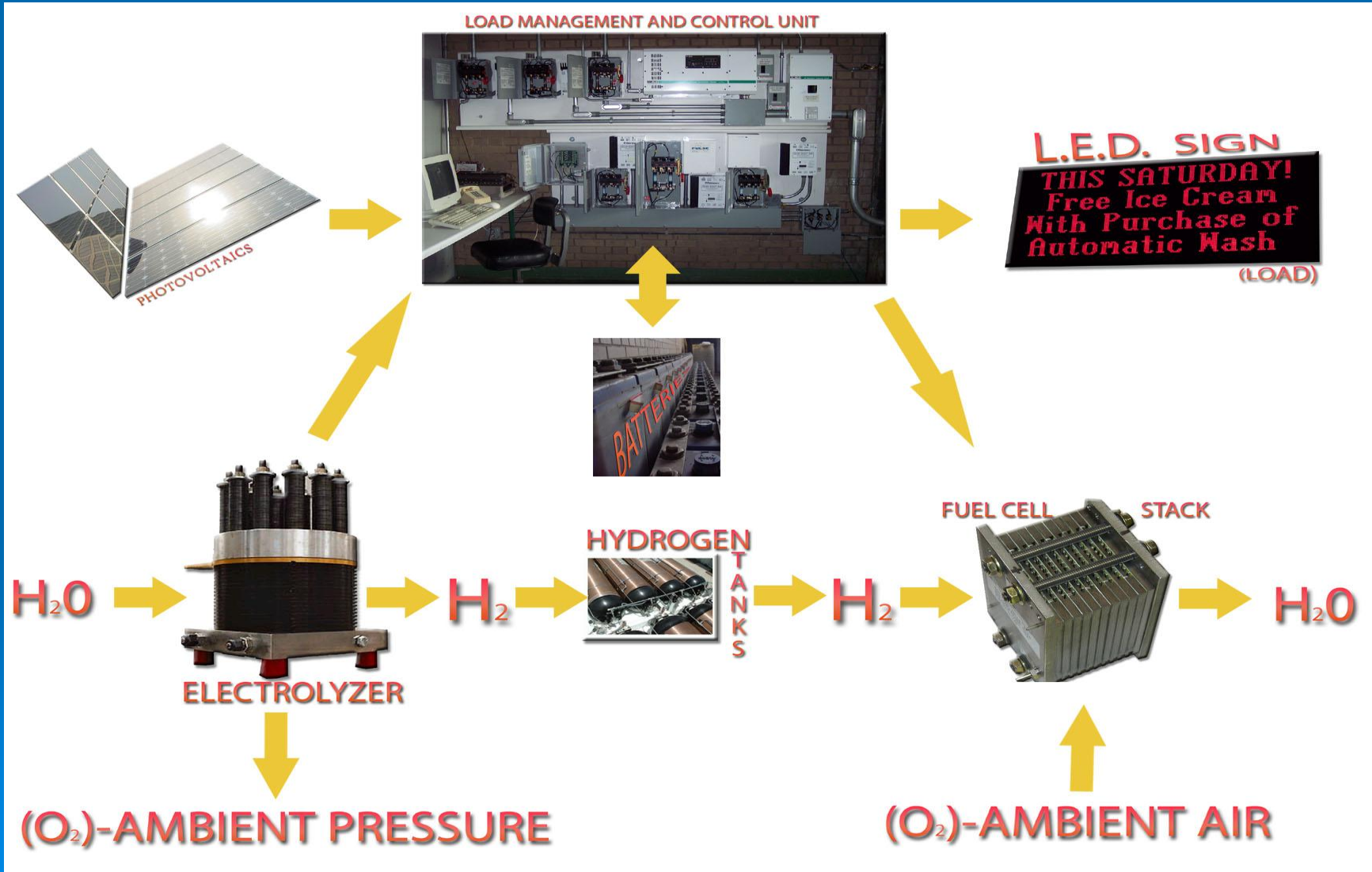
# Project Description

- Explore a range of design concepts
  - Electronic billboard system
    - Design, development, installation remote monitoring
  - Non-technical issues
    - Permits
    - Operating protocol
    - Policy and procedures
    - Aesthetics
    - Public relations
    - Marketing
  - Advancing IPRO
- 

# PEM Fuel Cell




# System Design



# Project Components

- “Big” Sign
  - The sign on the roof of the Co-Gen plant that can display messages to campus
- Test-Stand
  - A portable stand with a small hydrogen tank and the components to convert hydrogen that can power a 13” TV and small LED sign
- DAQ
  - A system that takes data from the test-stand and the “big” sign so PV and fuel cell performance can be monitored
- Website
  - The location to learn about the project

# Our Problems

- “Big” Sign
    - Not wired for power, data acquisition, or sign control
  - Test-Stand
    - Required reassembly because it had been stripped for parts
  - DAQ (Data Acquisition Software)
    - Existed, but not enough documentation for use
  - Website
    - Pieced together over the years
    - Very hard to navigate
- 



# Our Goals

- “Big” Sign
  - Wire
  - Broadcast messages promoting clean energy technologies
  - Connect to DAQ
- Test-Stand
  - Reassemble to power a TV and LED sign
  - Connect to DAQ
- DAQ
  - Use existing data acquisition software to acquire new data
- Website
  - Completely redesign the site for ease of use and data organization
  - Add a live camera

# Idea Implementation

- “Big” Sign
- Test-Stand
- DAQ
- Website

# “Big” Sign

## Tasks

- Obtain quotes
- Obtain funds
- Hire contractor for wiring
- Connect to DAQ



# Test-Stand



## Impediments

### ➤ Unfamiliarity

- Parts
- Wiring connections
- Desired look

## Accomplishments

- Fully assembled
- Running
- Connected to DAQ

# DAQ

## Impediments

- Lack of experience with Lab View
- Insufficient documentation of program
- Lack of continuity between previous groups and ours
- Lack of detailed wiring diagrams for connecting test-stand to DAQ

## Accomplishments

- Designed new DAQ software
- Familiarized ourselves with Lab View
- Took simple voltage measurements
- Troubleshoot test-stand instruments

# Website

## Tasks

- Catalog existing data
- Design templates for new look
- Create scripts to assemble pages using templates
- Reorganize directory structure and document those changes
- Develop and implement more useful picture interfaces
- Price, order, and install a camera to be integrated with the website

## Impediments

- Very time consuming
- Specific requirements for camera
- Poor network connectivity in CoGen building

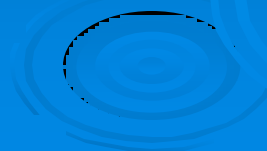


# Recommendations for the Future

- “Big” Sign
  - Connect to DAQ
  - Broadcast messages
- Test-Stand
  - Show it off and educate people
  - Acquire more data using DAQ
- DAQ
  - Get real fully-functional system working again
  - Have data logs available on the website
- Website
  - Install camera (ethernet and power on roof)
  - Integrate to website

# Lessons Learned

- Documentation
  - Descriptions
  - Passwords
- Teamwork
  - Communication
  - Accountability





# Thank you

## ➤ Faculty

- Dr. Said Al-Hallaj

## ➤ Assistants

- Brian Kustwin
- Venakta Chowdary

## ➤ Sponsors



# Questions?

<http://www.iit.edu/~solarsign>

