

The Importance of Reliable Drawings and Documentation

Presented by Christian Negratti
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Introduction – Who Am I?

- **Christian Negratti**
- **Solar Car**
 - Raced with the Ben Barber Shine Runners in 2013
 - I have been involved with every race since I competed in 2013
 - In 2024 I was formally appointed to the foundation board of directors
- **Education**
 - Graduated from Oklahoma State University in 2018
 - Bachelor Science Mechanical Engineering
- **Career**
 - Superintendent Rotating Equipment Engineering
 - Rotating Equipment Reliability
 - Energy Industry



Credits



- **This presentation was prepared by Christian Negratti, using content from a presentation prepared by Brian Coleman**
- **Brian was unable to join us today due to a last minute conflict**

Poor/No Drawings

- **Constantly re-working**
- **Larger amounts of frustration**
- **Loss time, money, and resources**
- **Large amounts of Tribal Knowledge**
 - **Great for job security, bad for teamwork**
 - **Not great for long term team success**

Quality Drawings



- **Ease of design and assembly**
- **Saves time, money, effort, frustration**
- **Improves communication**

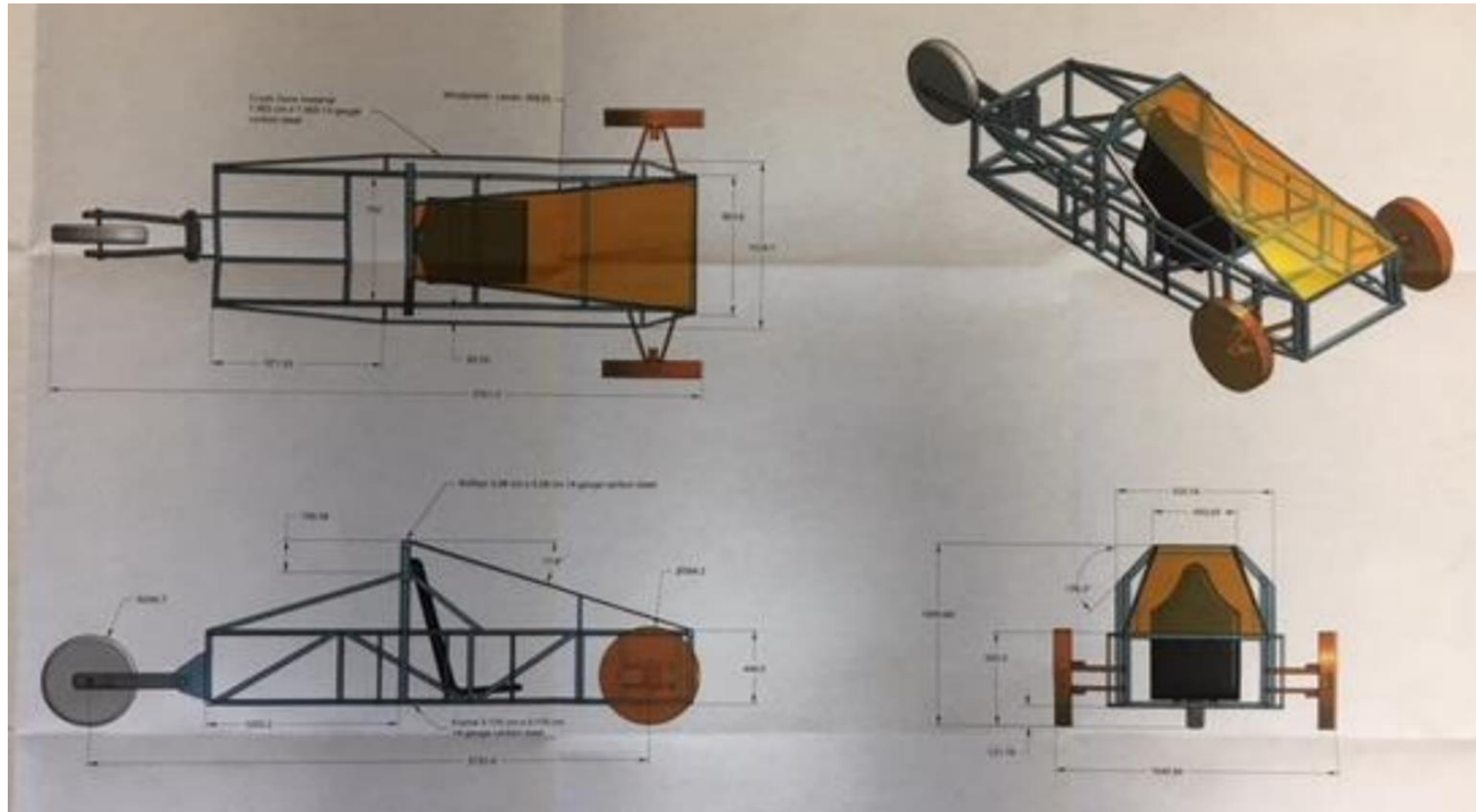
How to make drawings

- **Software**
 - **CAD Software**
 - Siemens Solid Edge, Autodesk, Solidworks, Onshape
 - **Other Software**
 - Adobe suite, Paint, etc.
- **Pen and Paper**
 - Large graph paper, pencils and a straight edge
- **Stone and Chisel**
 - Not recommended – Difficult to use. It would be pretty cool if you did though.

Mechanical Drawings

- **Communicate physical layouts**
- **Show dimensions**
- **Call out material spec's**
 - **Material type, and physical specs**
- **All builders care about are the drawings**

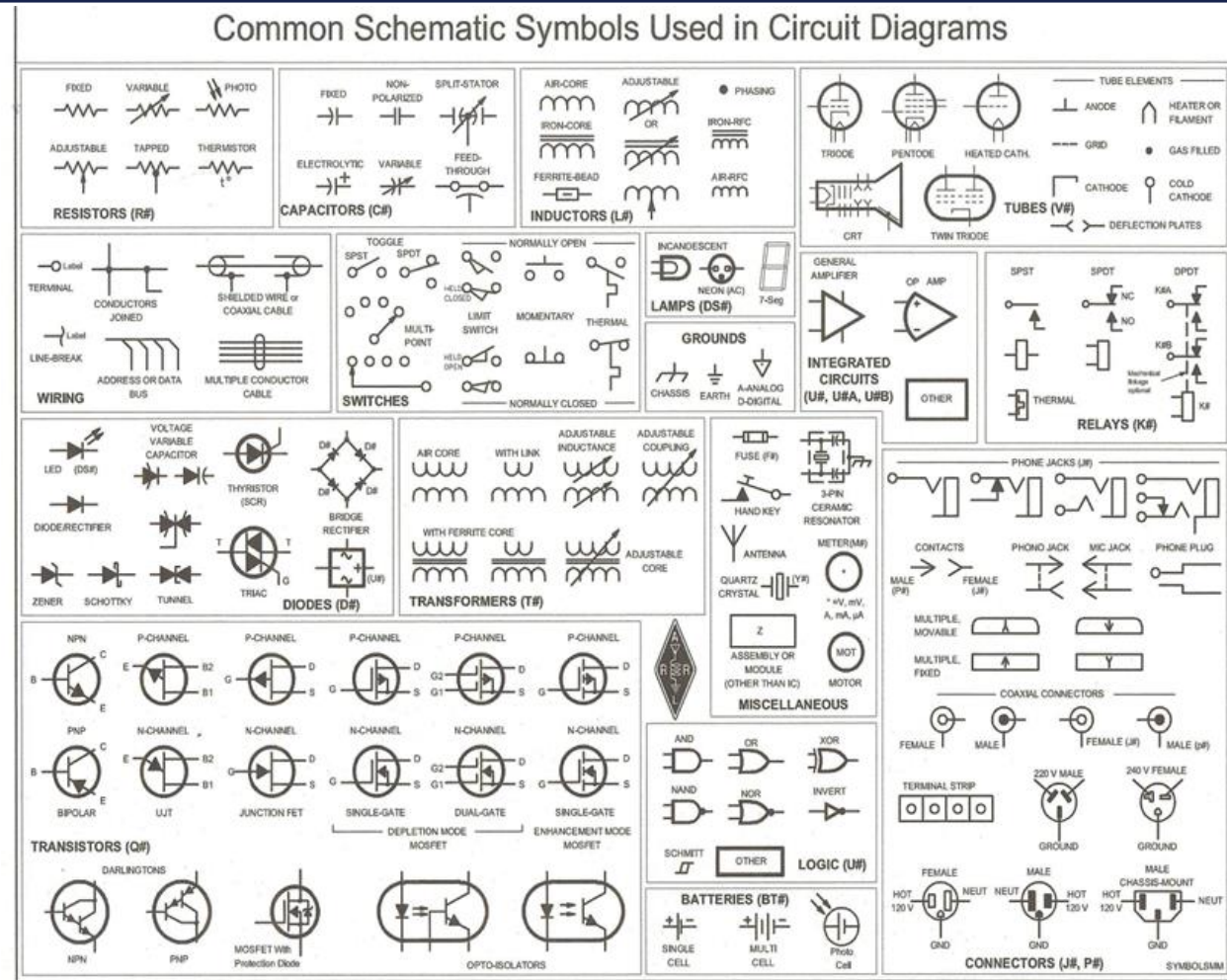
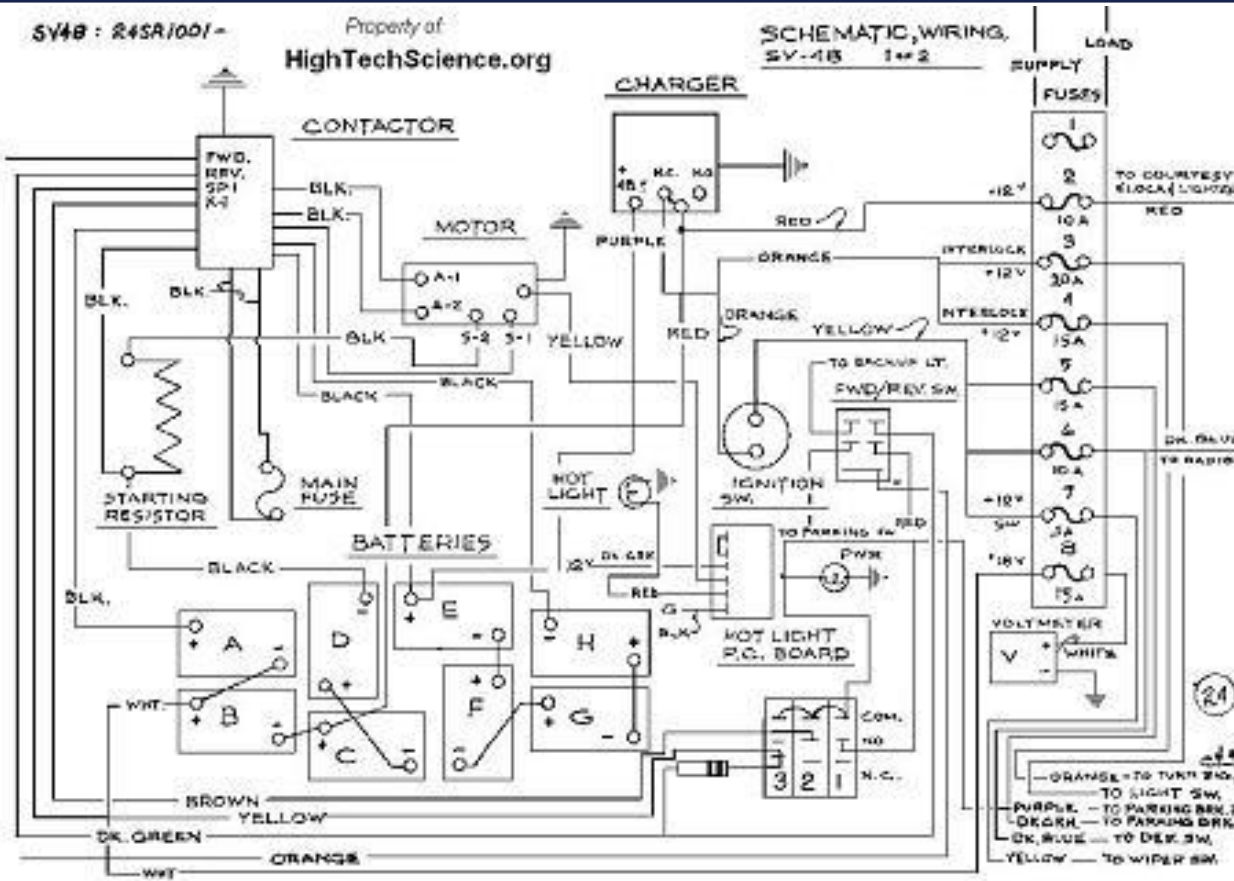
Mechanical Drawing Example



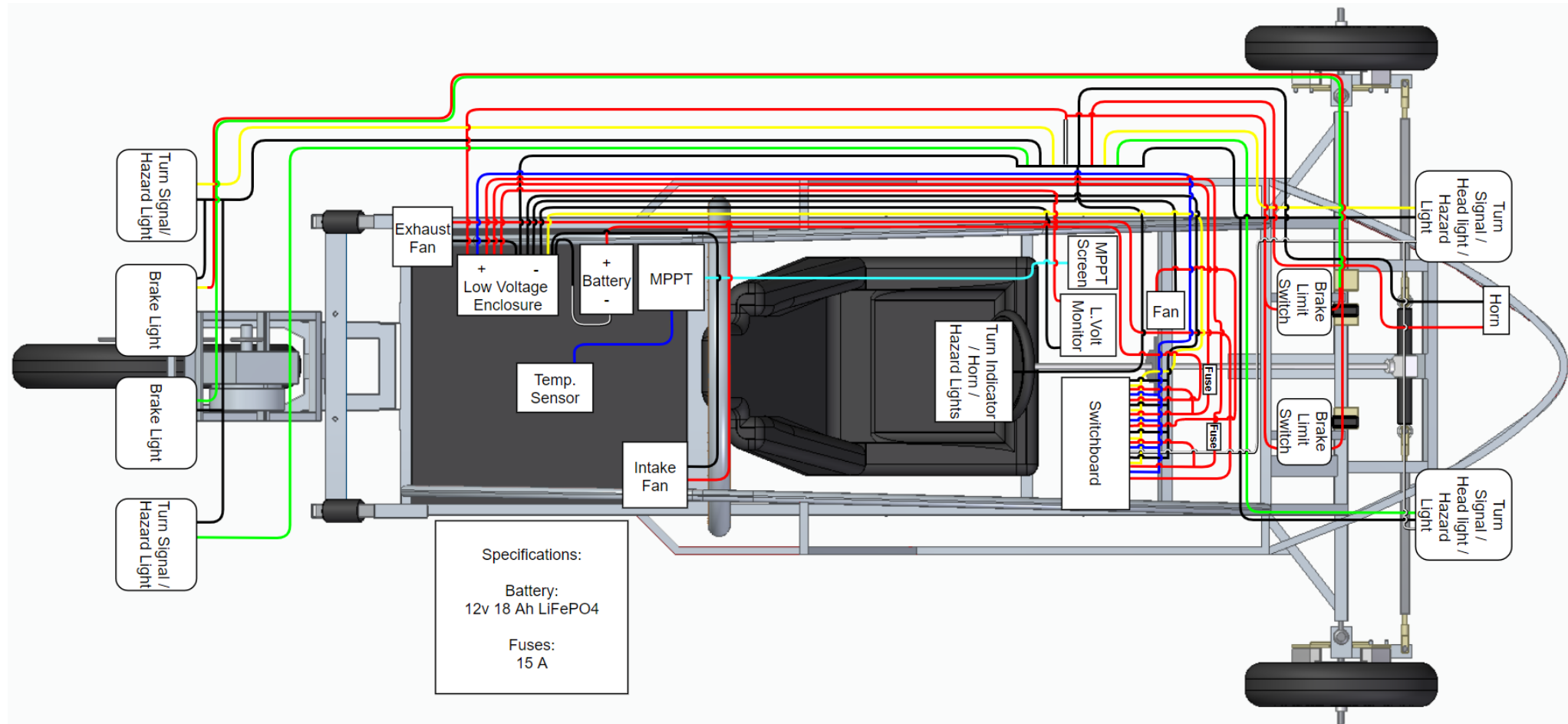
Wiring Diagrams/Schematics

- **Different types**
 - **Schematics / One Line**
 - Does not show physical layout, just simplifies connections
 - **Wiring Diagrams**
 - Shows physical layouts of wiring
 - Helps visualize installation

Wiring Schematic Example



Wiring Diagram Example



Questions?

