

ASTC02 - PROF. HANNO REIN

WELCOME!

WHAT YOU'LL LEARN IN THIS COURSE

1. ASTROPHYSICS
2. OPERATING THE TELESCOPE
3. DATA ANALYSIS

ASTROPHYSICS

1. Coordinate systems
2. Orbital motion of planets, asteroids and comets
3. Evolution of stars
4. Star clusters and galaxies
5. Distance measurements

TELESCOPE

1. Basic operation of a telescope
2. Finding objects in the sky
3. Specifics about the UTSC telescope
4. CCD Cameras
5. Electronics lab

DATA ANALYSIS

1. python + jupyter-notebooks
2. Data analysis
3. Image processing
4. Fitting and Markov Chain Monte Carlo

GRADES

Midterm	20 points
Final exam	30 points
Lab reports	25 points
Participation	25 points

LABS REPORTS

- Orbits of asteroids
- Periods of Jupiter's moons
- Image processing (galaxy)
- Dynamics of star clusters

LABS REPORTS

- Everyone works with the same dataset
- Need to write your own data reduction pipeline in python
- Need to write up results in 2-4 pages
- Can work in pairs, but need to work together.

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SOFTWARE

SOFTWARE

To work with telescope data, you need to install some software on your computer:

- Python 3.x
- Jupyter-notebooks
- numpy, scipy, matplotlib
- rawkit
- mpldatacurser
- pillow

SOFTWARE

ASTC02 has a github repository:

github.com/hannorein/ASTC02

Until next week: install all software, check if you can run the tutorial code! If so, you're all set!

SOFTWARE

Also:

- Stellarium!

SOFTWARE

Telescope uses a custom python program to communicate with the computer. You can check it out online:

github.com/hannorein/utsc-ptcs

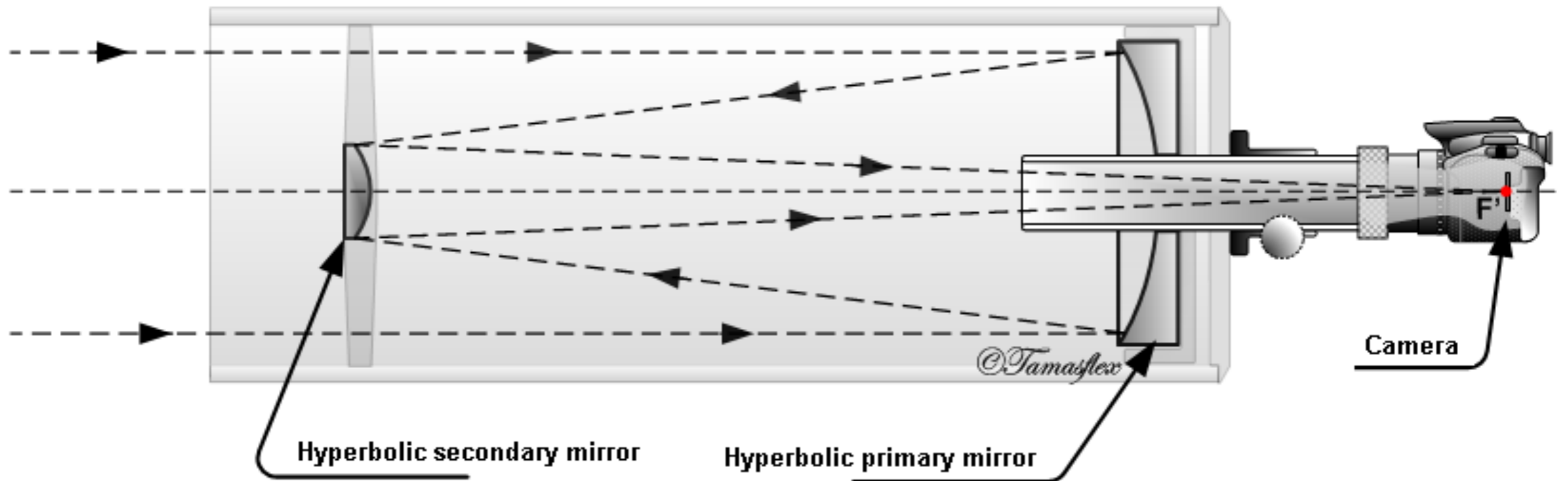
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TELESCOPE

SAFETY

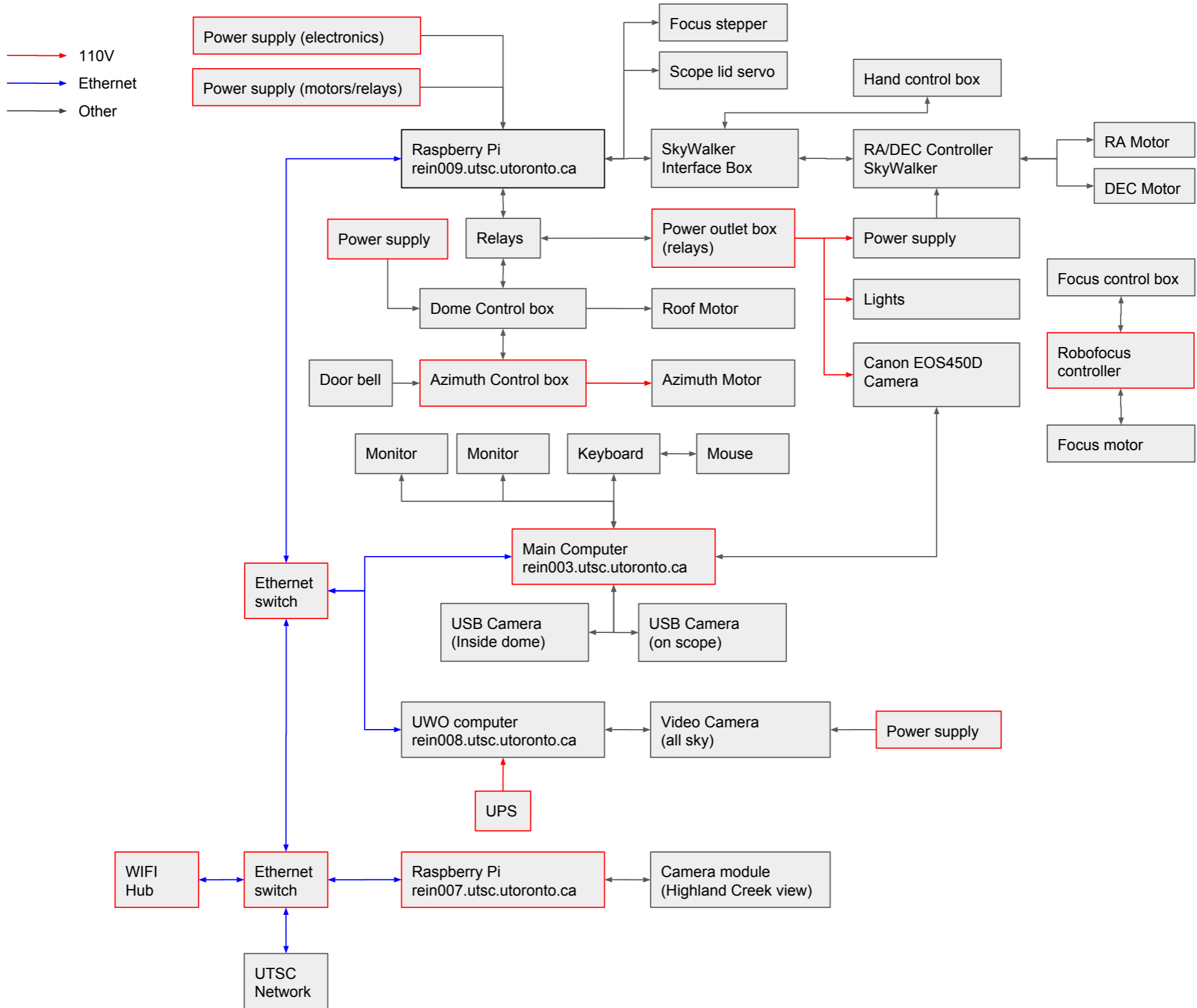
1. Moving parts
2. Electrical components
3. Roof

8-INCH F/8 RITCHEY-CHRETIEN



Ritchey - Chrétien (RCT)

Also: Hubble Space Telescope, Keck telescopes, ESO Very Large Telescope



LET'S GO OBSERVING!