Celestron CG-3 Go-To/Tracking Conversion

Project Description

- Telescopes have become more affordable over time, but telescopes that can automatically track objects across the sky and/or point to specific objects in the sky are still a bit expensive.
- This tracking is indispensable for any kind of photography or scientific work, as the telescope needs an object in the same spot within its field of view for an extended period of time in order to collect any meaningful results.
- Unfortunately, dedicated telescope mounts and even conversion kits are expensive.
- This project seeks to create such a conversion kit for the telescope that I own for cheaper.

Telescope image

Topic/team

- This project will focus mainly on actuators (motors).
- It will also include some user input/output in the form of buttons and a display.

Learning with AI Topics

- Hardware: user IO (buttons and display), in order to show the user the current celestial coordinates that the telescope is pointing at and so they can choose what object to track
- Hardware: stepper motors, which are required to move the two axes on the telescope mount
- Software: how to drive the motors and how to handle user input with physical buttons

Time usage

- My goal for the first iteration is to learn what hardware I need for the finished project and how to use it.
- I will learn which particular motors, display(s), and buttons to use; I will also learn how to work with them in code.
- My goal for the second iteration is to create a coordinate display and motor control system.
- My final goal is to make a working prototype and present it to the class and as part of my portfolio.