Motorized star tracker

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Accessible astrophotography: A DIY 3D-Printed star tracker

Photographing celestial objects requires long camera exposures, but the Earth's rotation causes stars to blur and trail across the image. To capture crisp photos, the camera must perfectly counteract this rotation. While commercial star trackers exist, they are often prohibitively expensive, lack flexibility, or require complex setups. This project introduces an affordable, highly precise, and completely open-source tracking mount using modern 3D printing and readily available single-board computers.

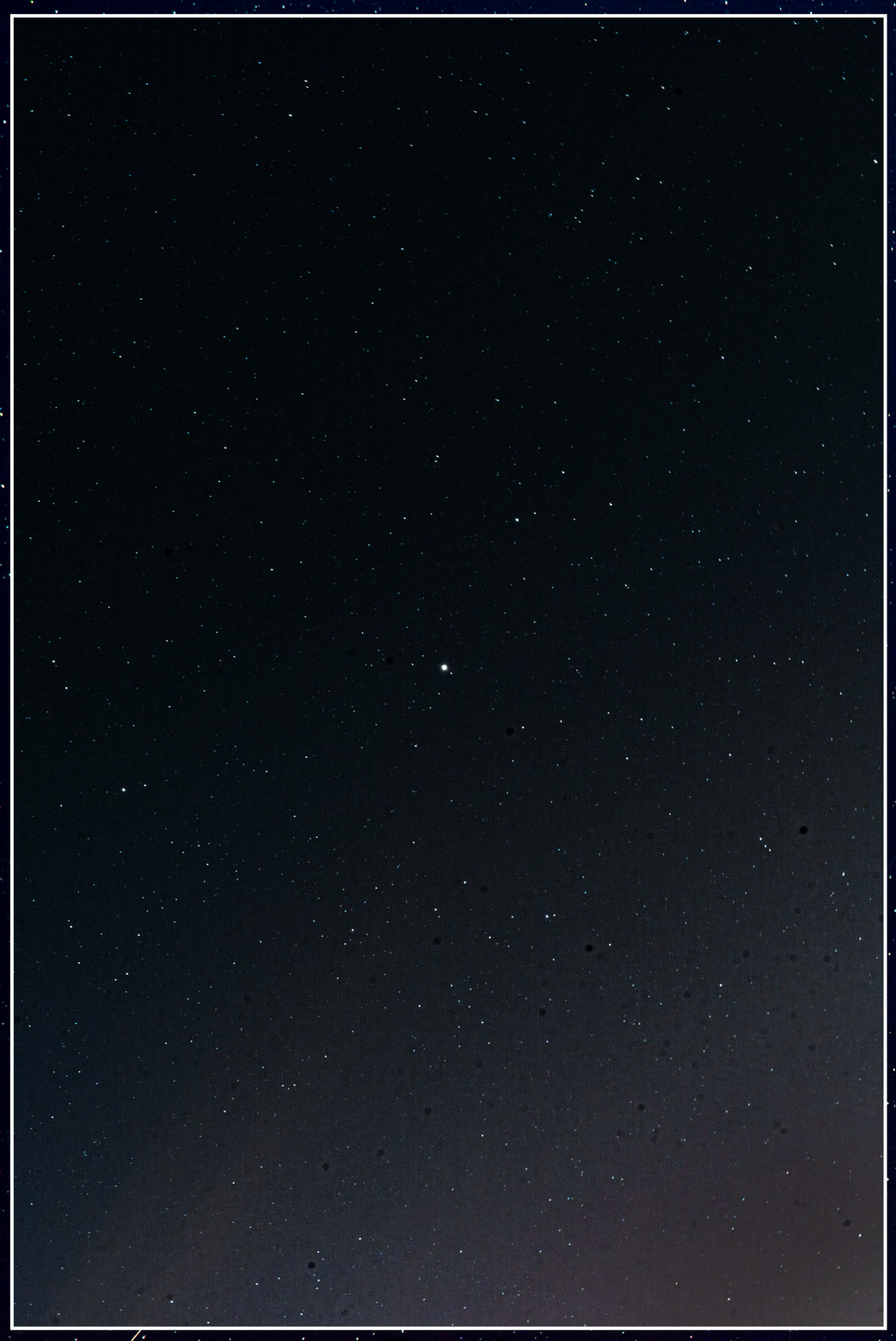

Figure 1:
600 second exposure with diurnal motion compensation

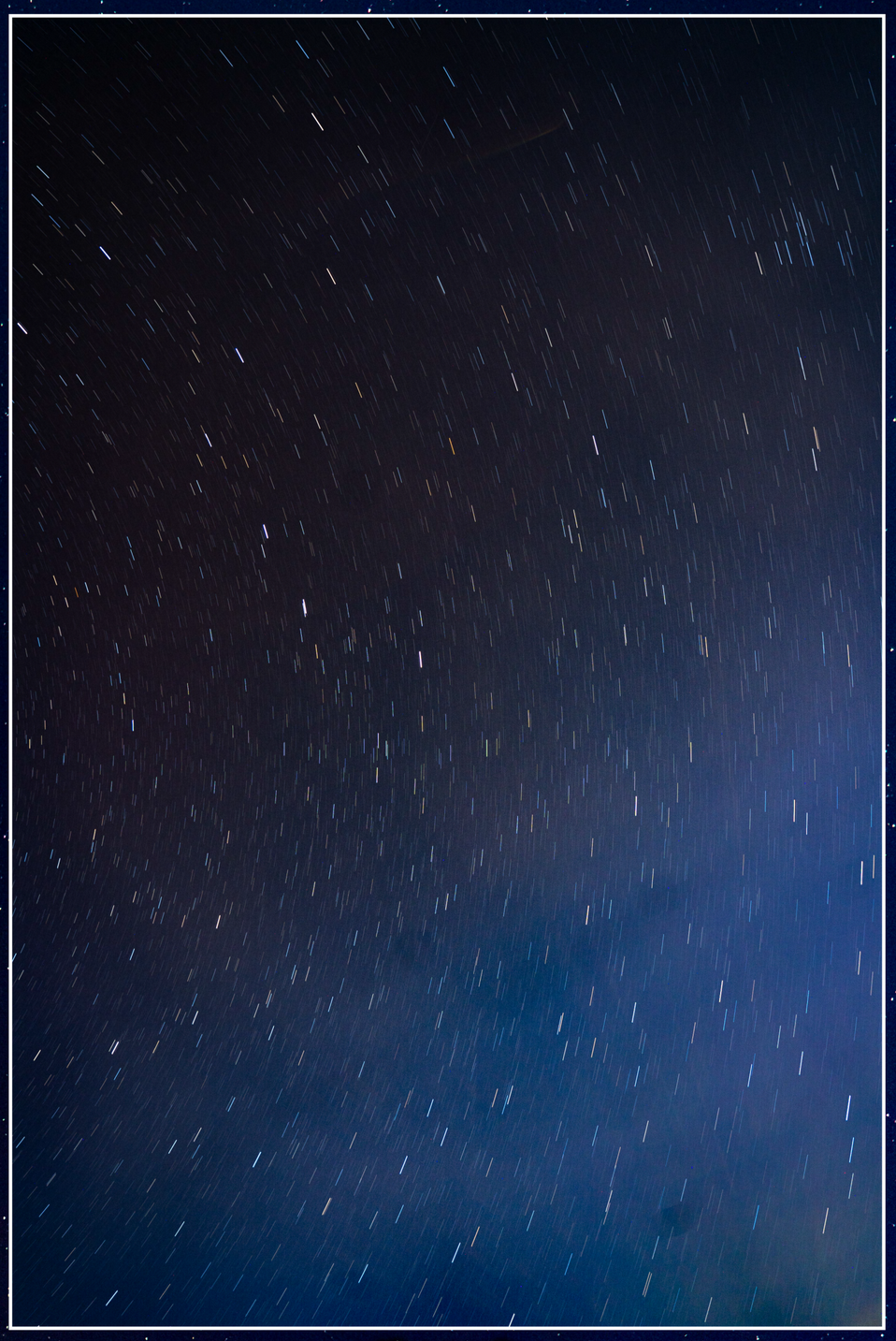

Figure 2:
300 second exposure without diurnal motion compensation

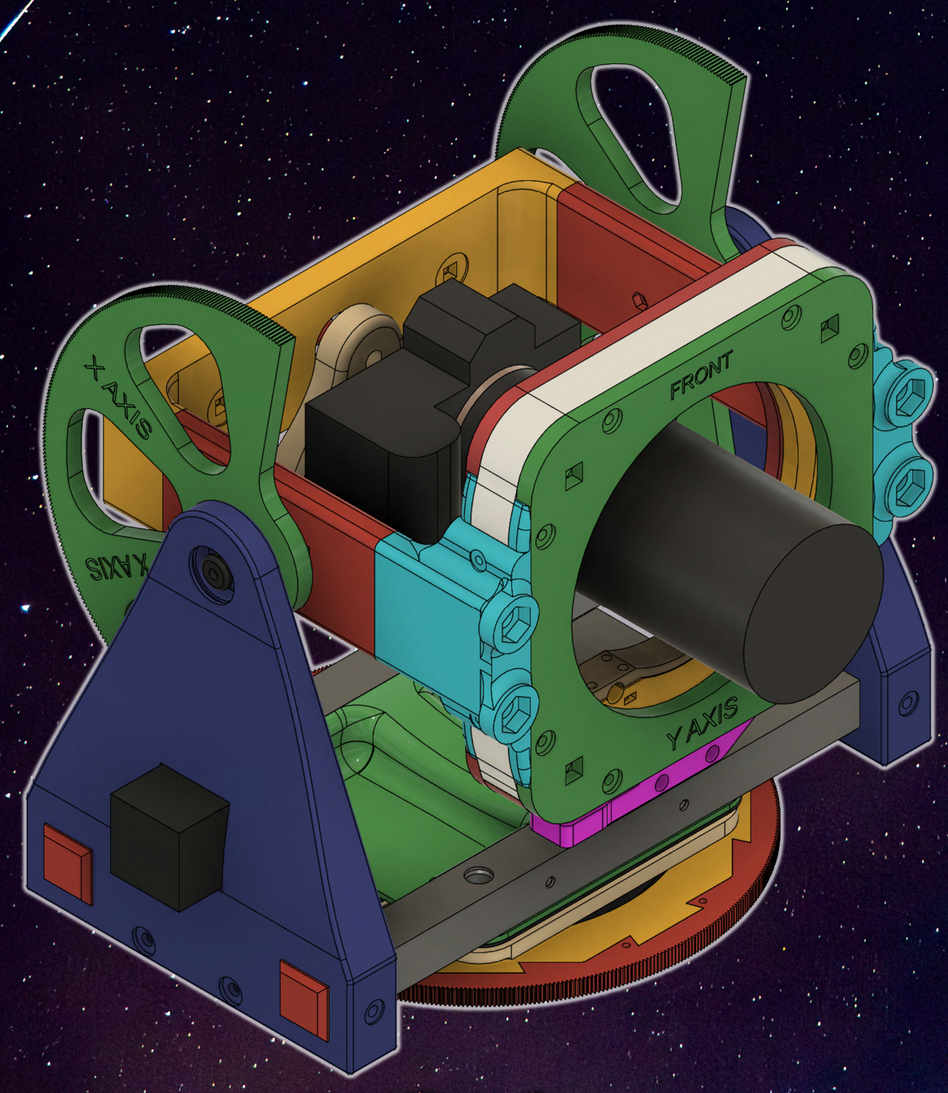

Figure 3:
CAD model of the mount

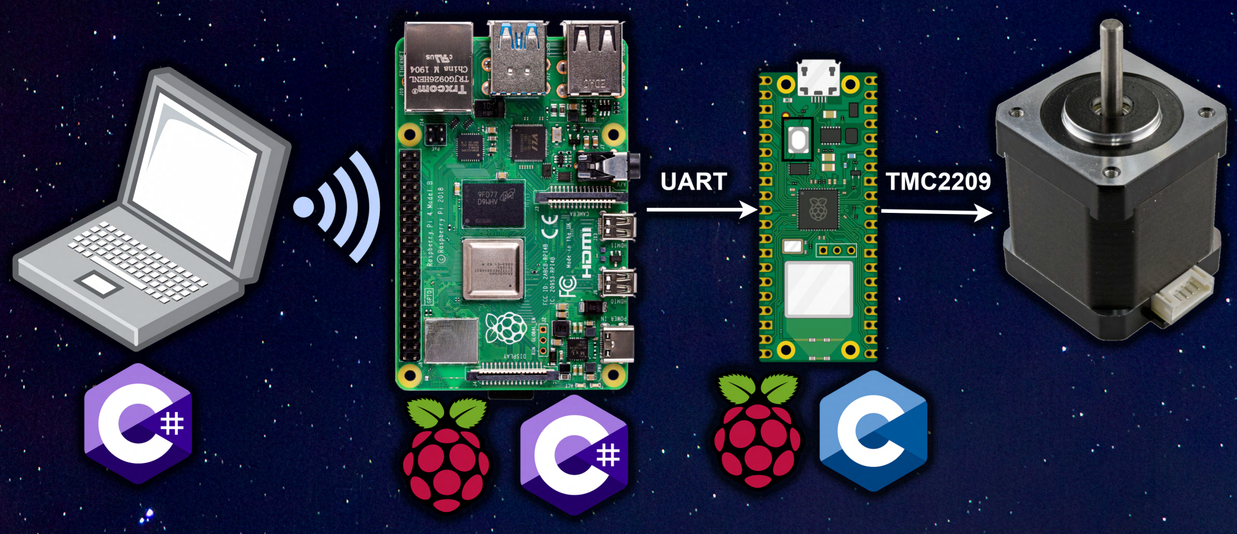

Figure 4:
System architecture scheme

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