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HARDWARE.astronomy: Repair and Refurbishment of the Small Radio Telescope

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Abstract:

A Small Radio Telescope (SRT), originally developed by MIT's Haystack Observatory, was donated to Winona State University by Mayo High School in Rochester, Minnesota. The assembly includes a 2.3 meter dish with mount and motors that allow pointing over the entire sky. The SRT, unfortunately, has been weathered over years of exposure to the elements, and was absent all the electronics necessary for pointing and collecting data. Here we report our efforts to repair, replace, and refurbish the SRT for future undergraduate research. Specifically, the replacement of pointing hardware, the development of a motor control system and graphical user interface (GUI), and future work to implement a software defined radio (SDR) for detection of astronomical signals.

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