**Project Title:** H🙲M Configuration Dongle

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**Department:** Electrical Engineering and Computer Science Department

**Faculty Advisor:** Dr. Fourney

**Project Maturity:** 1st semester

Daktronics is a company based in the U.S. that designs, manufactures, sells, and services video displays, scoreboards, digital billboards, and related products. The display controllers that Daktronics produces are normally accessed over a network using a web browser to configure and control the video displays. If the network fails or the display controller’s network settings are corrupted, the display controller becomes inaccessible. This prevents the user from accessing the display controller to implement necessary changes to the display. Reconfiguring the network settings to gain access to the display controller is time consuming if multiple display controllers are inaccessible at the same time. A device is needed to gain physical access to the network settings of those controllers (host devices) and to reconfigure these network settings as needed. This device will communicate with Daktronics’s host device using USB to read and to configure the host device’s network settings. The communication protocol of this device will be designed so that the beginning and the end of a message is detected unambiguously. Additionally, the device will be able to detect dropped or corrupted data and recover that data. Lastly, the device will be backward and forward compatible and will include the capability detection feature. Furthermore, the communication protocol of this device must include a 16-bit cyclic redundancy check (CRC). This device will provide Daktronics with an easy, robust, and efficient way of troubleshooting their display controllers.