

COUPP Camera Trigger Interface Controller Module Implementation Plan

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Introduction

The smart cameras specified for use with the COUPP 60 Kg bubble chamber require interconnection such that they can be synchronized and controlled by a host computer. The requirements of this interconnection are complex enough to warrant the design of an interface device to accomplish this goal. The COUPP Camera Trigger Interface Controller (CTIC) Module has been proposed as this device. This document describes a proposed implementation plan for the smart cameras and the CTIC module.

Module Design

The Computing Division's Electronic Systems Engineering Department will provide the engineering resources to design, prototype, test, and integrate the CTIC module into the 60 Kg bubble chamber's electronics. The effort required can be broken down into the following tasks:

- Specification Authoring. 1 FTE Engineer: 1 month.
- Circuit Design. 1 FTE Engineer: 2 months.
- Circuit Board Design. 1 FTE EA: 1 months.
- Enclosure Design. 1 FTE EA: 2 weeks.
- CPLD Code Design. 1 FTE Engineer: 2 months.
- Component Procurement. 1 FTE Technician: 2 weeks.
- Prototype construction. 1 FTE Technician: 1 month.
- Prototype debug. 1 FTE Engineer: 1 month.
- Integration Testing. 1 FTE Engineer: 1 month.

Note that several of the above tasks will overlap, and will allow for a shortened project timeline.

Software Design

CTIC interface software will run on the system host computer and will communicate with the CTIC through a USB connection. (TBD) will provide software design resources to code, test, and integrate the support software for the CTIC module. The effort required can be broken down into the following tasks:

- Specification Authoring. 1 FTE Programmer: 1 month.
- Initial code write. 1 FTE Programmer: 2 months.

- In situ debug. 1 FTE Programmer: 1 month.
- Integration Testing. 1 FTE Programmer: 1 month.