4-21-1989

Advanced Solid-State Optical Imaging System

Douglas A. Worden
Indiana University - Purdue University Fort Wayne

FINAL REPORT

ADVANCED SOLID-STATE OPTICAL IMAGING SYSTEM

PHASE I DEVELOPMENT

Submitted to:

Electrical Engineering Technology Department
Indiana University - Purdue University
at Fort Wayne
2101 Coliseum Boulevard East
Fort Wayne, Indiana 46805

Submitted by:

Douglas A. Worden

April 21, 1989

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

LIST OF ILLUSTRATIONS

LIST OF ILLUSTRATIONS (Continued)

ABSTRACT

Worden, Douglas Alan, Indiana University - Purdue University, Fort Wayne, Indiana, April 1989. Advanced Solid-State Optical Imaging System. Major Professor: R. D. Hack.

Today's aircraft pilots are faced with a severe handicap. With increasing aircraft air speed, technology must provide the pilot with the capability of long range vision.

To solve this problem, I will develop an Advanced Solid-State Optical Imaging System. The development has been separated into two phases. This paper will deal with the Phase I development of the system.

I have completed the Phase I development of this project. A prototype consisting of the electronics required to scan and read an Image Sensor, and convert the data levels to digital information was developed. The Image Sensor chosen is a full-frame charge-coupled sensor, that was designed specifically for applications where ruggedness and small size are required.

The system will have an operating temperature range of 0 to +50 degrees C, and a storage temperature range of -20 to +60 degrees C. It will operate from a single external supplied voltage of +15 VDC and require a maximum of 30 watts.