



# CAD R&D of Security Systems

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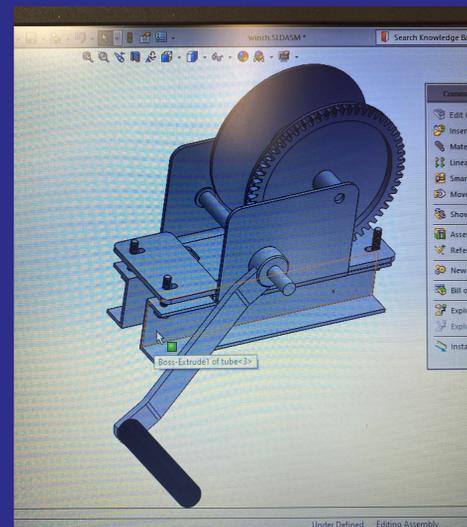
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## What is Smart Imaging Systems?

Smart Imaging Systems (SIS) is a mid-sized security systems manufacturing start-up specializing in state-of-the-art threat detection technology, specifically high resolution but low intensity X-ray devices.



Product demo of Top and Side view systems for Customs & Border Control



Winch I designed for the Top View Scanner System

## Activities:

- Used Solidworks CAD to draft prototype parts and assemblies for two state of the art security systems.
- Prepared product demonstrations for multiple customers.
- Occasionally worked with the shop technician to fabricate prototype components.
- Designed with standard sheet metal parts and tolerances.

## Impacts

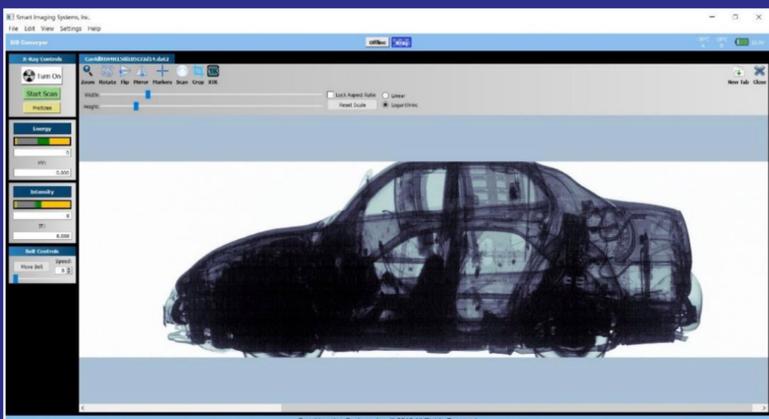
The multi-million-dollar project design work and product demos influenced SIS sales, resulting in customer purchases of both the Side and Top view scanning systems.

Not only did I expand my CAD and shop skills, I gained a deep understanding about the practicality and economics side of the design process. I learned to use standard parts and tolerances in my design assemblies in order to cut costs, as opposed to wasting resources designing many custom parts. I also gained knowledge of sheet metal fabrication standards, so I could design for ease of physical fabrication and assembly.

## Issues Confronting Site:

The challenge is at my site is to produce X-ray encasement designs which will allow for the quick deployment and constant reuse of this X-ray technology for border agents and police agencies.

These encasement designs must be as easy to assemble, cost saving and light weight as possible.



Real time X-ray Side View scan



Ramp for Top View System designed in Solidworks

## Site Details:

Smart Imaging Systems

10761 Tucker Street, Unit # 104  
Beltsville, MD 20705, USA

## Supervisor:

Dr. Satpal Singh

## Goals:

Provide next generation efficient and cost cutting threat detection, specifically to design effective encasements for the proposed top and side view X-ray scans.

## Future Work:

I continue to work at Smart Imaging Systems, where there is always work to be done. The designs for the scanning systems are under constant revision, as the models shown in the images are only prototypes. I make updates to the CAD models daily, in hopes of making the designs more easily deployable, light weight, cost effective, and aesthetically pleasing.



SCIENCE AND  
GLOBAL CHANGE

## Acknowledgments:

I'd like to thank Dr. Holtz & Dr. Merck, leaders of the Science and Global change program. I'd also like to thank my site supervisor, Dr. Satpal Singh, for making this experience possible.

[Link to Testimonial Video](#)

