The purpose of this project was to design an automated quality control machine, which inspected rice cakes coming out of the cooking process.

**Project requirements:**
- Must reject certain percentage of defective rice cakes
- Operate at or faster than current conveyor speeds
- Document the failure of the rice cakes
- Complete a cost benefit Analysis of the full implementation

**The Problem:**
Rice cakes had defects and were inspected by hand by Lundberg employees. This caused:
- Repetitive stress injuries
- Wage cost
- Human Errors

## Current Method
Manual inspection of each rice cake by an employee.

## Concept
Simple trigonometry equation

Through preliminary testing of average heights, it was possible to determine defects through the average heights.

## How it works
Two optical thru-beam sensors trigger a program to take multiple pictures, calculates the average height and sends a signal to eject a bad rice cake.

A Phidget 8/8/8 interface kit handles input from thru-beam sensors and output signals to the air solenoid.

Adjustable laser mount allows for a range of values for angle α.

## Final design
Conveyor with inspection station.

## Project Outlook
This system works and proves the concept is feasible for industry. Automating the inspection process will solve the issues of manual inspection. Reducing repetitive stress injuries, human error and overhead.

Suggestions for the future:
- Embedded system
- Event based programming
- Processes running independently of each other
- High powered computer adds pictures per rice cake