University of Houston
College of Technology
Department of Engineering Technology
Computer Engineering Technology Program

ELET 4308/4108 SENIOR PROJECT PRESENTATION

FLOYD IMAGING

Team 9

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Introduction

Floyd Imaging

- Is a Liquid Crystal Display (LCD) Panel Picture Frame that changes images when motion is detected from a micro-controlled motion sensor.
- This design also includes a photo sensor which turns off the LCD panel when the room becomes dark and restores power when it is light.

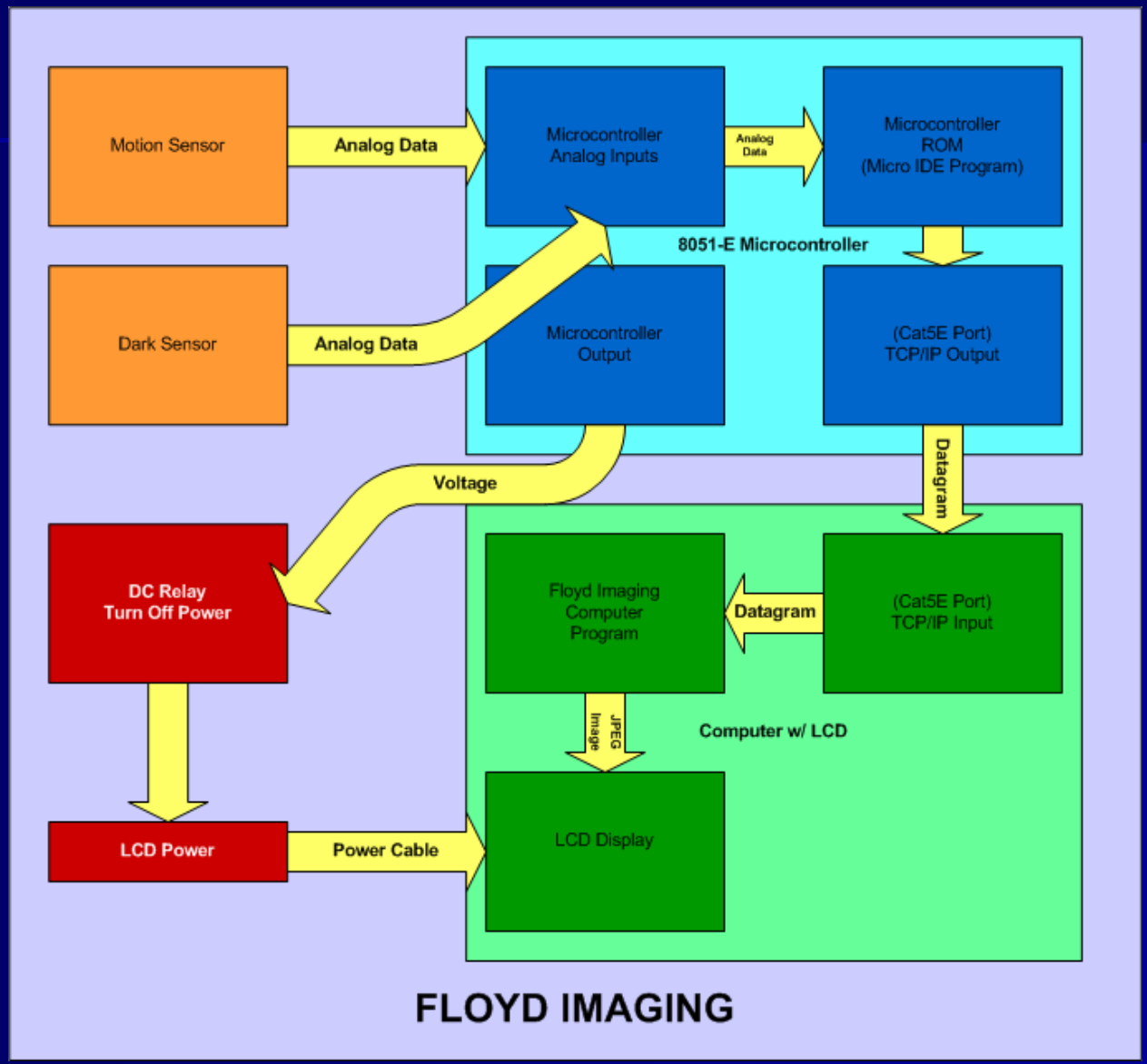
Background

- With the advancement of digital photography, image capturing has become easier and more convenient.
- Floyd Imaging will provide users an option to display these images in their home without having to print out pictures, frame them, and find a space on a wall for them to be placed.

Product Requirements

- Floyd Imaging was designed to be used by the every day person in their home.
- The product should be low cost and readily available, while maintaining product quality.
- It is easy to use and has little to no maintenance.
- The design could be bundled with digital camera sales.

Block Diagram



Design Alternatives

Floyd Imaging could be more proficient if...

- The motion sensor was laser
- The circuit design was manipulated
- Time and cost allowed for add-ons such as:
  - Wireless transmission between two panels
  - Security camera detection system

Design Specifications and Description

Hardware:

- A prototype wall
- A Dell PC tower (CPU)
- A 17” HP LCD Panel
- A Motion/Photo Sensor
- A LCD Panel Power Switching Circuit
- A 8051 Microcontroller

Design Specifications and Description

Circuit Design Details:

- 4 major circuit components linked to 8051
  - LDS: Light Dark Sensor
  - PSU: Power switching Unit
  - USS: Ultra Sonic Sensor
  - RJ45: Ethernet Communication

Design Specifications and Description

Microcontroller Programming:

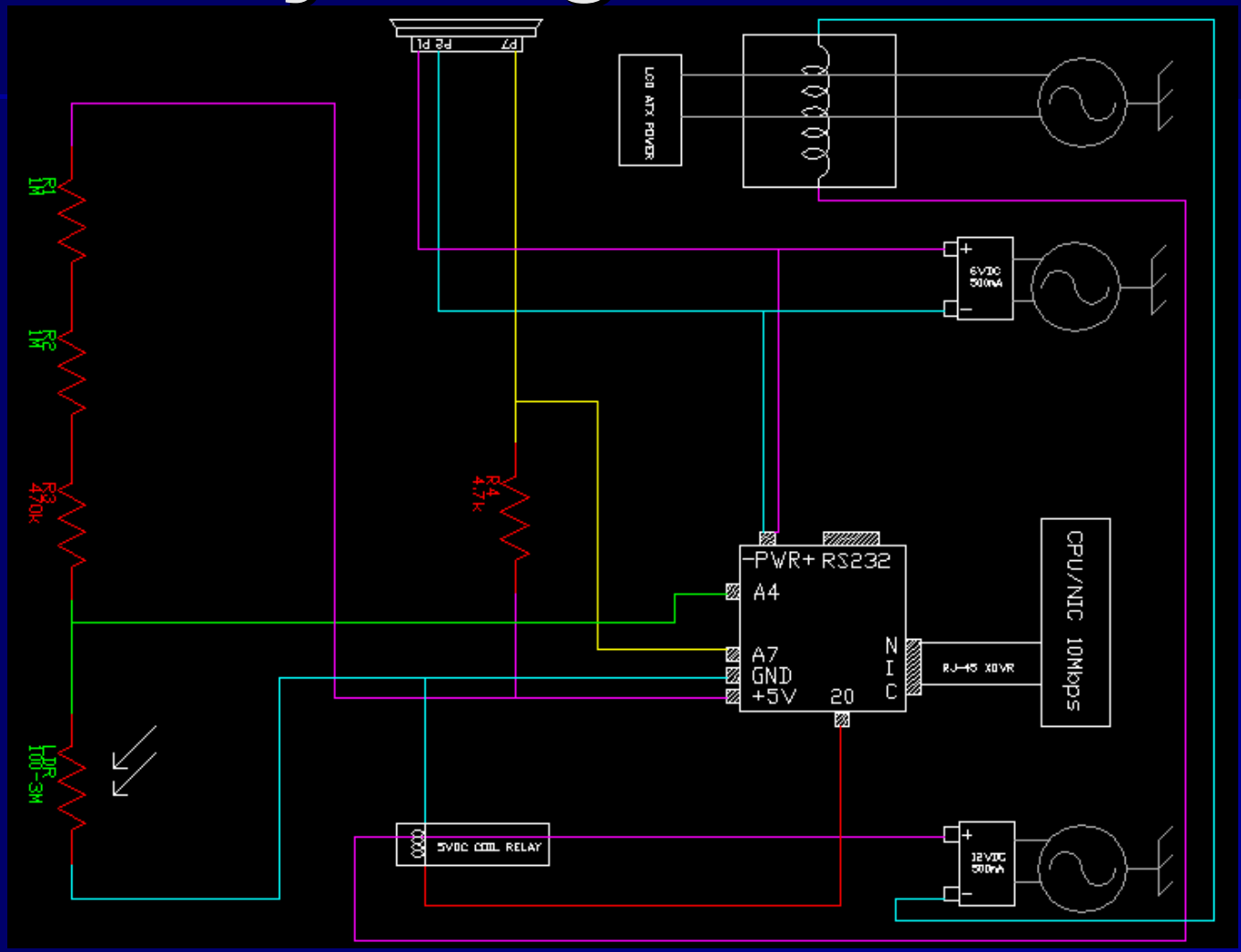
- Waits for http “get” request
- Displays xml and parses tags
- Tags receive analog input
- Tags display on web site
- Floyd Imaging receives variables
- Waits for http “get” request

Design Specifications and Description

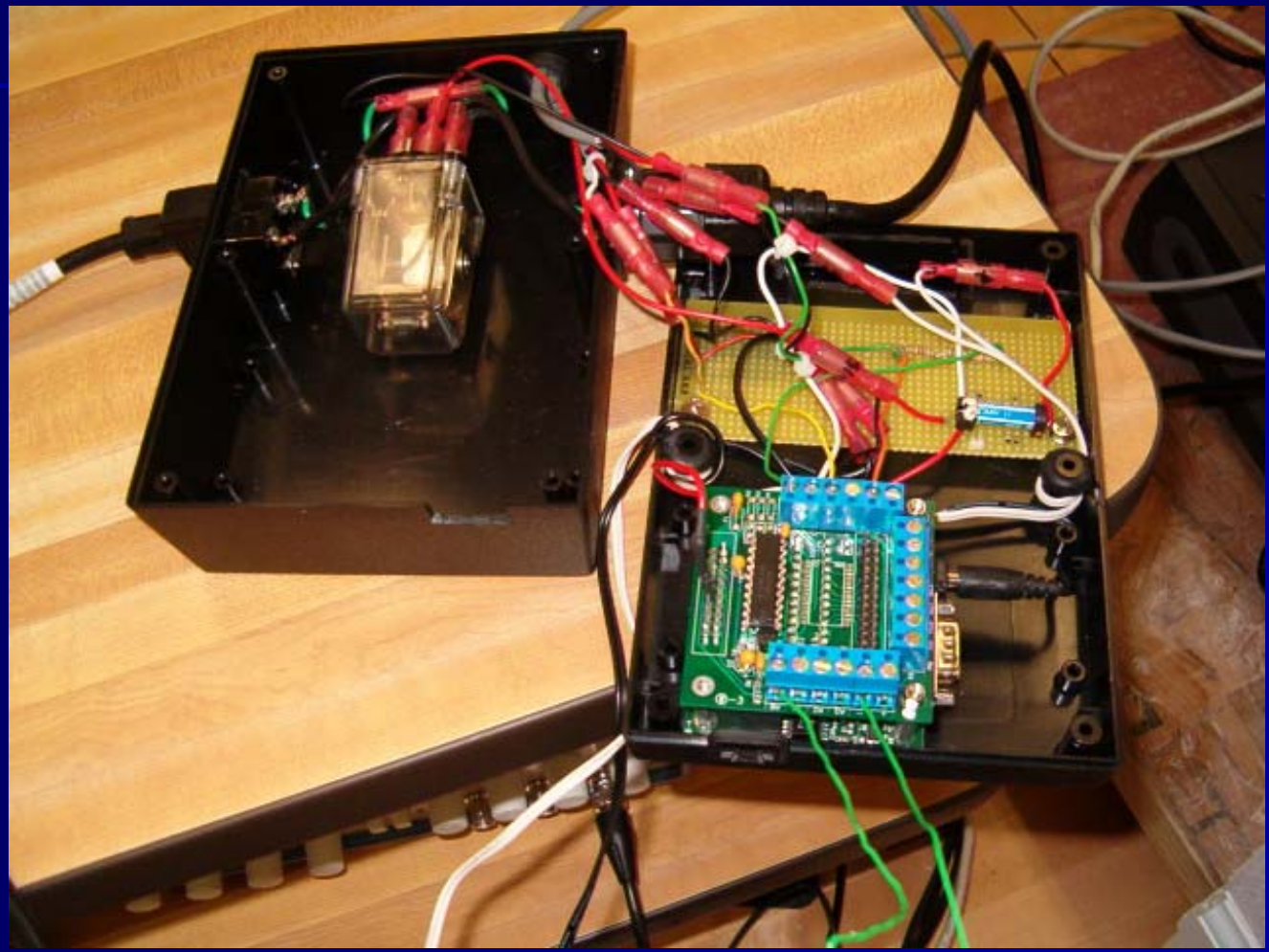
Software:

- Reads settings based on configuration file.
- Scale Windows form to maximize usage of screen.
- Creates HTTP GET request and reads values from XML at intervals based on cifiguration file.
- Determines if light sensor has been triggered.
- If light sensor has been triggered then the threads are paused.
- Determines if motion sensor has been triggered or if timeout has been reached.
- Resized next picture to be displayed to LCD to maximize resolution while maintaining aspect ratio.

Circuitry Diagram



Control Unit



Construction Details

The Floyd Imaging Prototype was mostly constructed of scrap material found at Home Depot. These items included:

- 8 pieces of 2x4's
- 3x4 ft. piece of drywall
- 1 sheet of plywood
- 1 gallon of Oops paint
- 4 casters
- Screws

Cost Analysis

Parts/Material Cost:	$281.87
Donated Parts/Material Cost:	$798.13
Total Project Cost w/Donations:	$1086.00
Remaining Budget:	$62.13

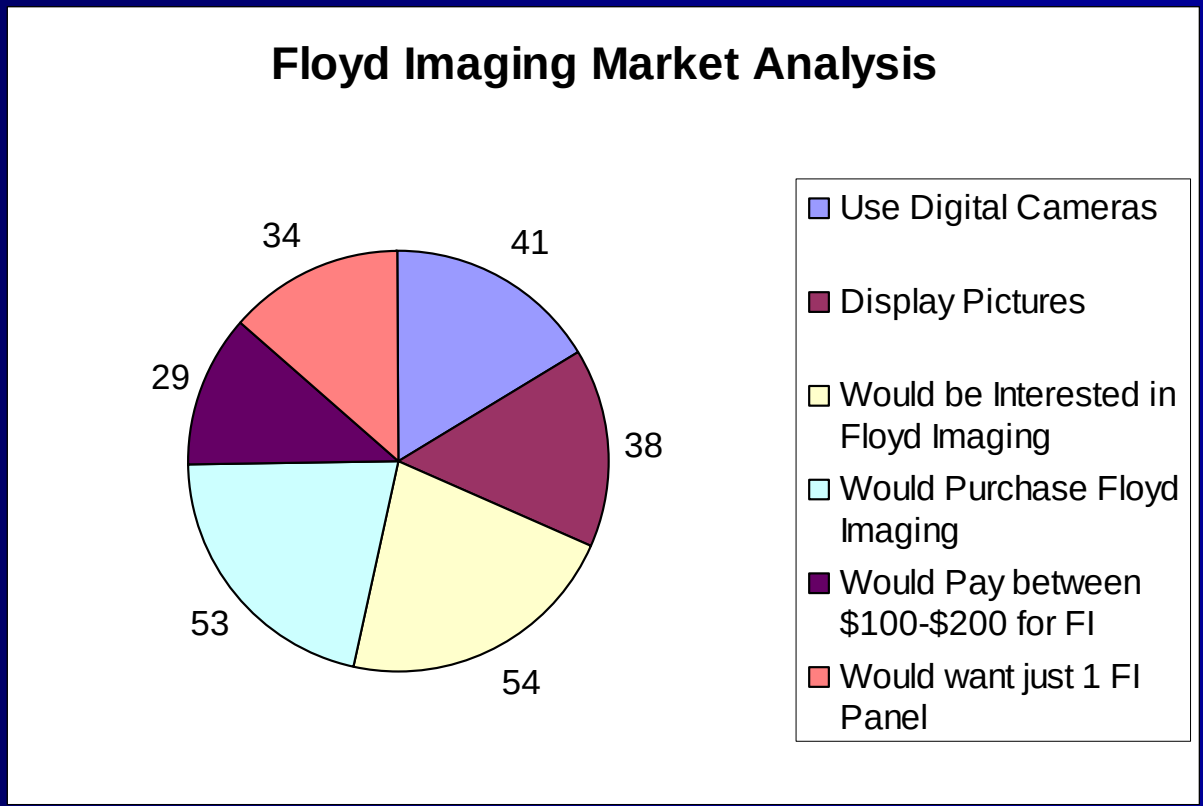
Test Results

Type of Test	Result
Picture Display Testing	Successful
Motion Sensor Testing	Successful
Photo Sensor Testing	Successful
Longevity Testing	Successful
Peak Voltage Testing	Successful
System Stability Testing	Successful

System Stability Testing

Market Analysis Results

After surveying 60 people the following was determined:



Project Schedule

PHASES:	COMPLETION DATES:
Project Scope Phase	9/14/05
Proposal Development Phase	9/29/05
Design Phase	10/4/05
Development Phase	10/17/05
Building Phase	10/26/05
Unit Testing Phase	11/17/05
Marketing Phase	11/21/05
Final Project Presentation	12/01/05

Floyd Imaging

Any Questions?