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Team 14 – Midterm 1 Presentation

Solar Powered Wireless Infrared Monitoring System

Michelle Hopkins • Nixon Lormand • Kenny Becerra
Joseph Besler • Jonathan Jennings • Alex Hull
Advisors: Dr. Hollis, Dr. Arora
February 19, 2015

Presentation at a Glance

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Project Background	• Need & Goal Statement • Objectives • Sub-System Integration • System Design
Prototype Scope	• Restated Scope & Goals • System Logic • Procurement
Prototype Progress	• Monitoring System Status • Power System Status • Moving Forward

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Project Background

Need & Goal Statement • Objectives • Sub-System Schematic • System Design

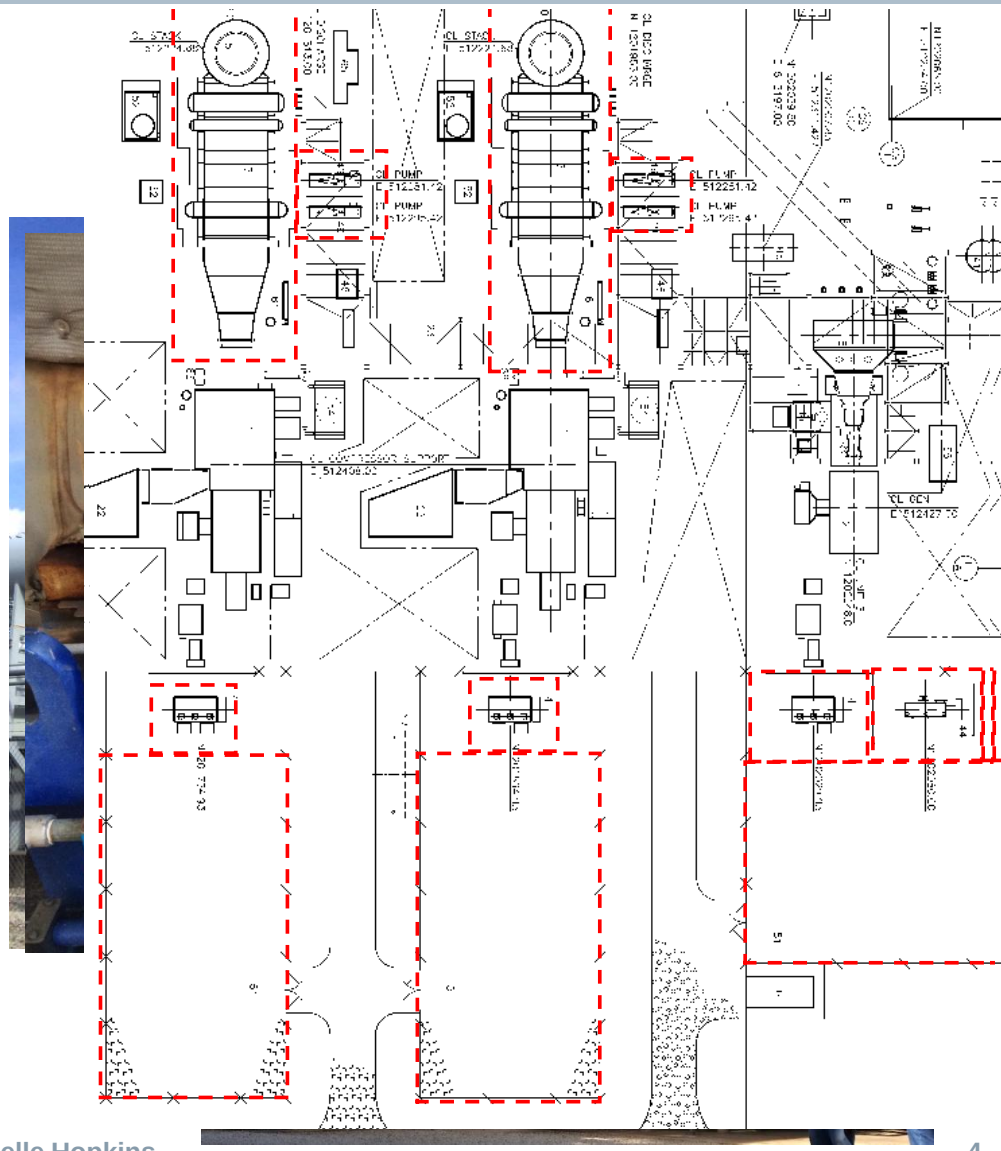
Need & Goal Statement

Needs Statement

There is a need for an improved method of monitoring critical equipment under operation in power plants.

Goal Statement

Design a proposed complete system that can monitor a wide range of equipment for problematic operation.



Objectives

1. Decrease equipment interference on operating systems.
2. Decrease manual work needed for preventative maintenance.
3. Design a stand-alone system that does not consume any auxiliary power.
4. Create cost savings through the elimination of need for numerous existing systems.

Objective 1	Objective 2	Objective 3	Objective 4
Infrared Camera	Wireless System	Solar & Battery Storage	Pan Tilt Module

Sub-System Integration

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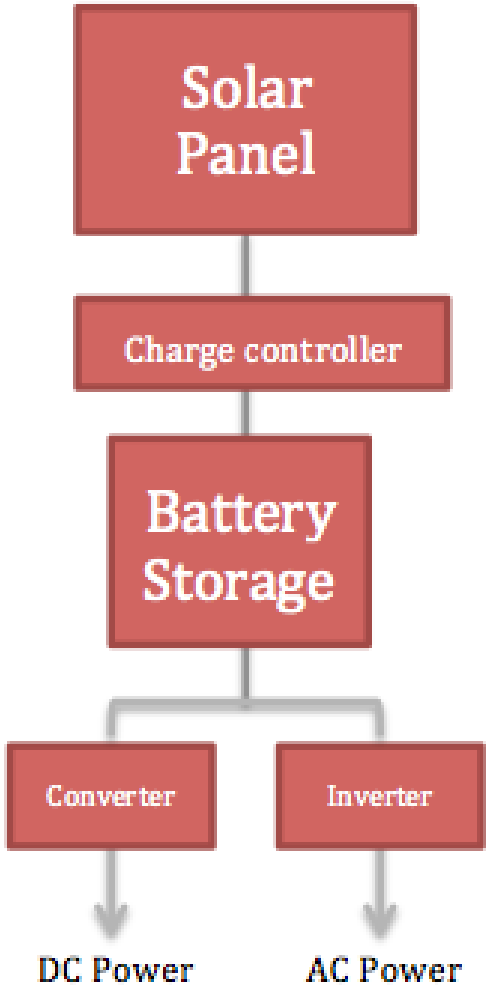
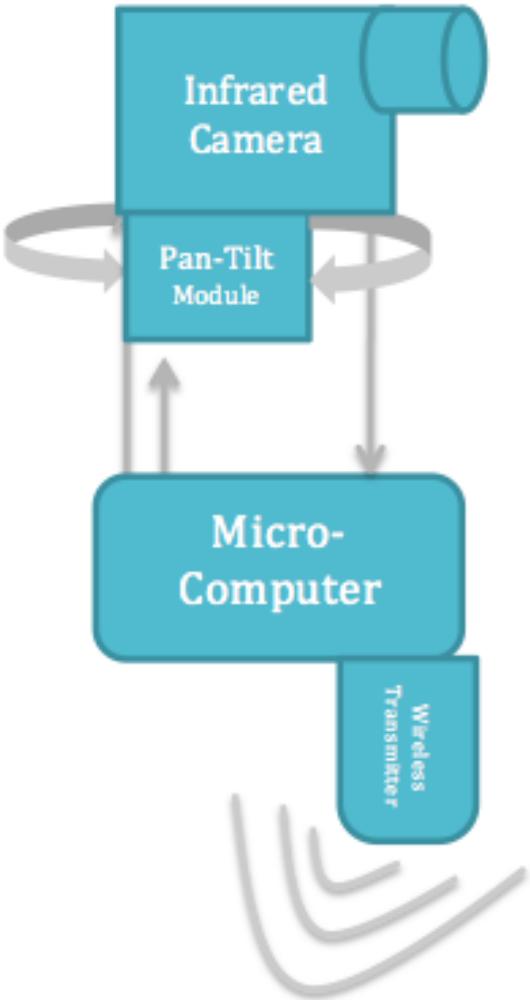
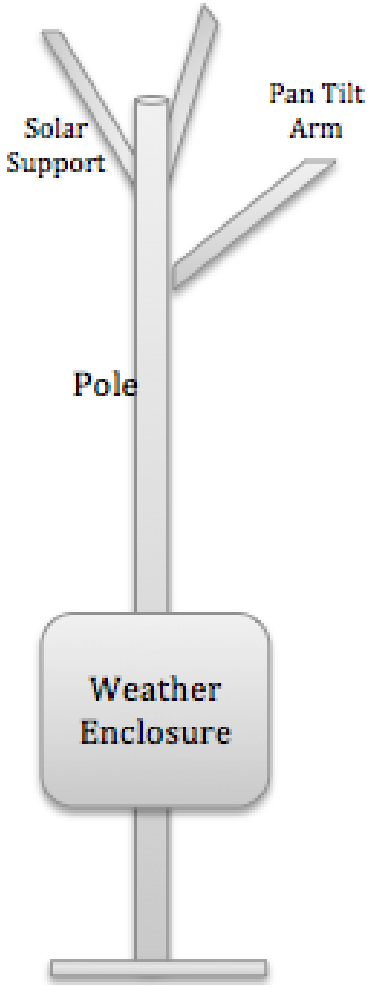
Power System



Monitoring System



Mounting System



System Design

Renogy 150W Panel

FLIR IR Camera

Axis Pan Tilt

MPPT Controller

100Ah Battery

Versalogic Board

Wireless Adapter

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Prototype Scope

Prototype Goals • Prototype Scope • Procurement Status

Prototype Scope & Goals

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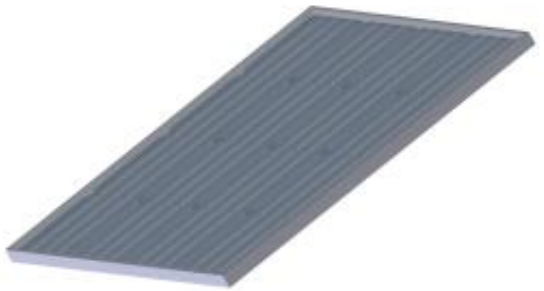
Scope

Proof of Concept Prototype of the Monitoring and Power System



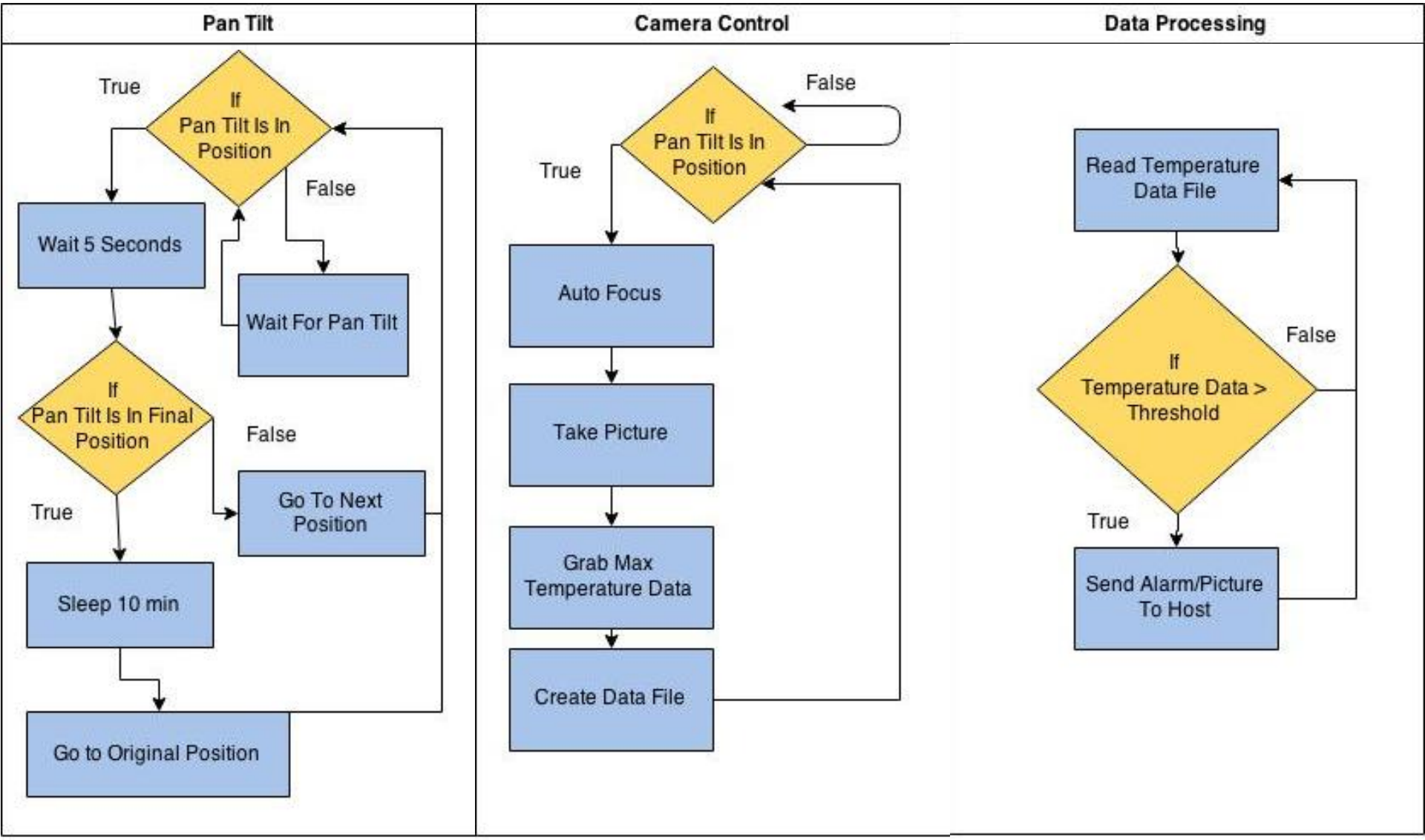
Primary Goal

Wirelessly transmit infrared images of selected targets while system cycles through set positions.

Secondary Goal

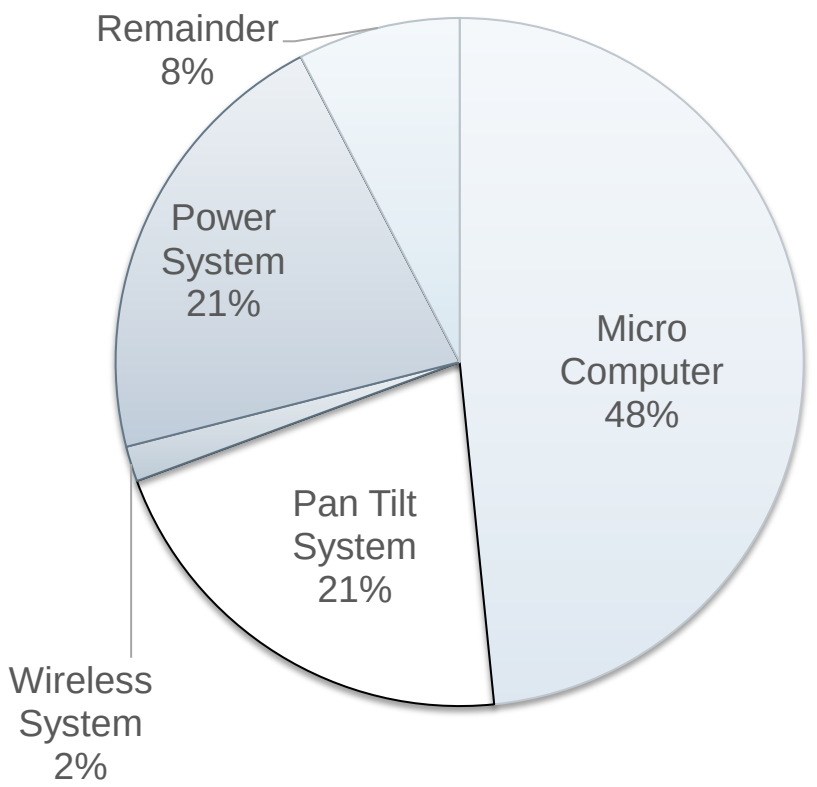
Develop a Graphical User Interface and alarm program to filter information received from targets and notify user when problematic situations occur.

Microcomputer Logic



Procurement

Prototype Budget	
Subsystem	**Expense**
Infrared Camera	$0.00
Micro Computer	$1,452.00
Pan Tilt	$629.43
Wireless	$49.73
Solar Power System	$639.75
Budget	$3,000.00
Remainder	$229.09



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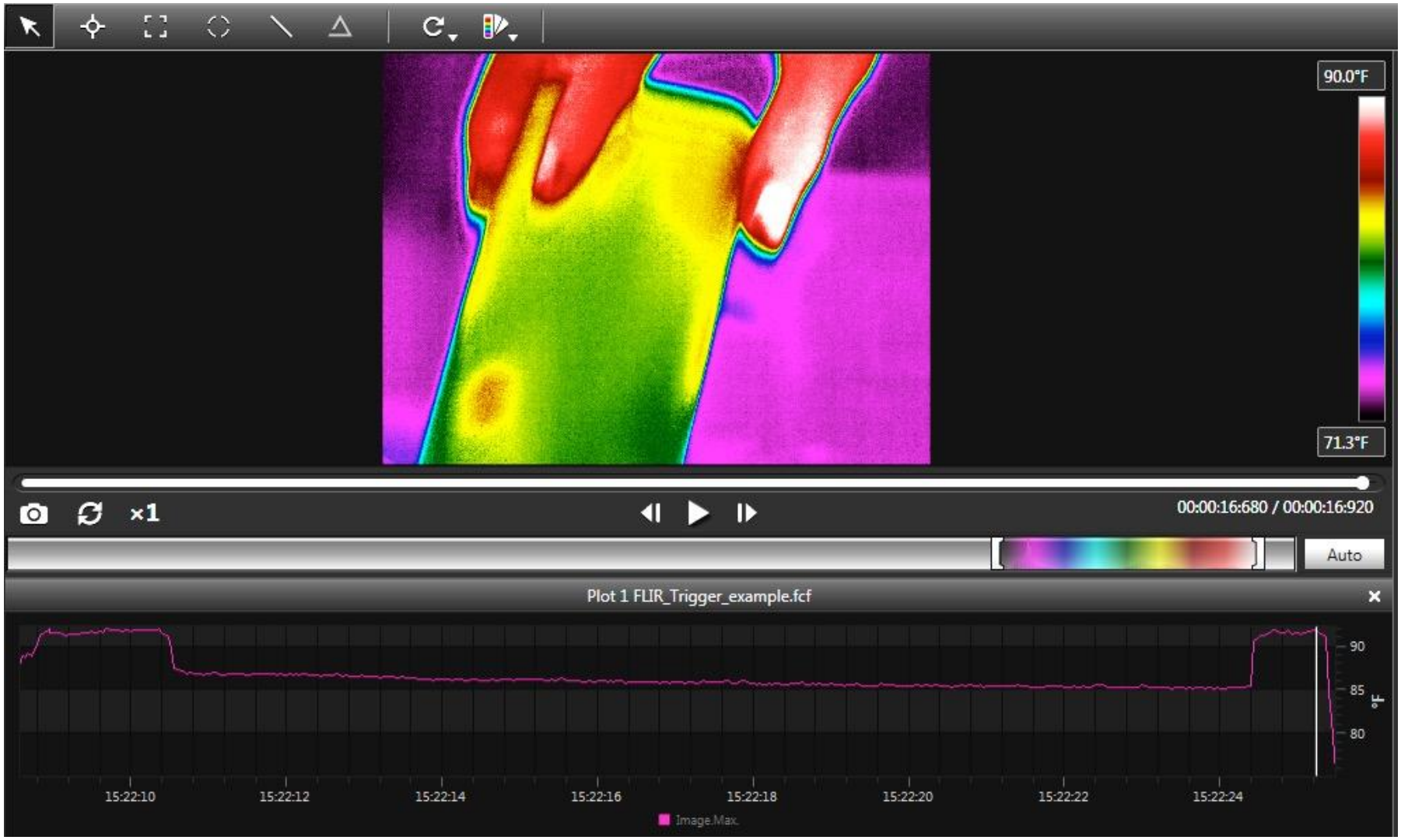
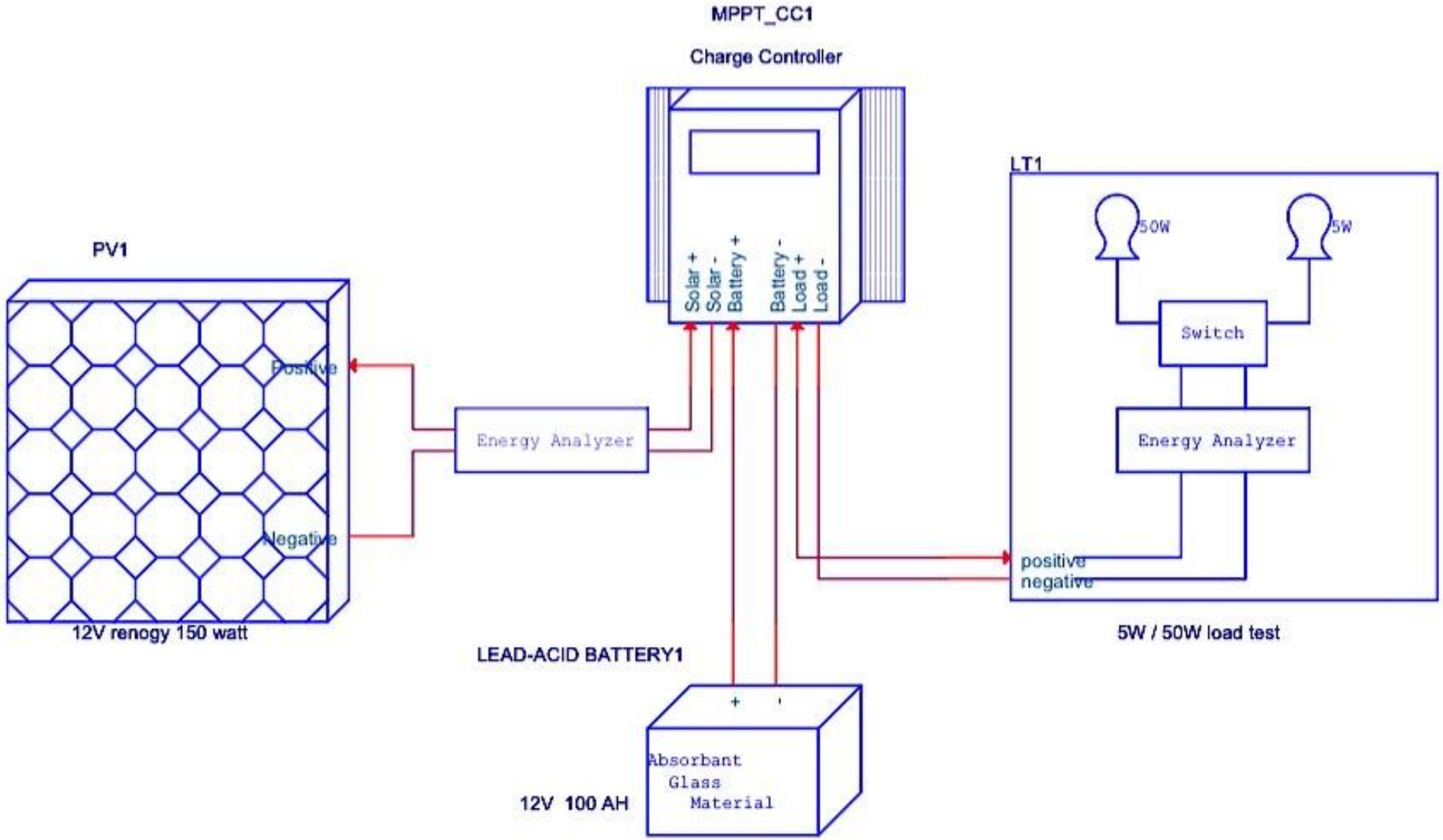
Prototype Progress

Monitoring System • Power System • Problems Encountered • Moving Forward

Monitoring System Status

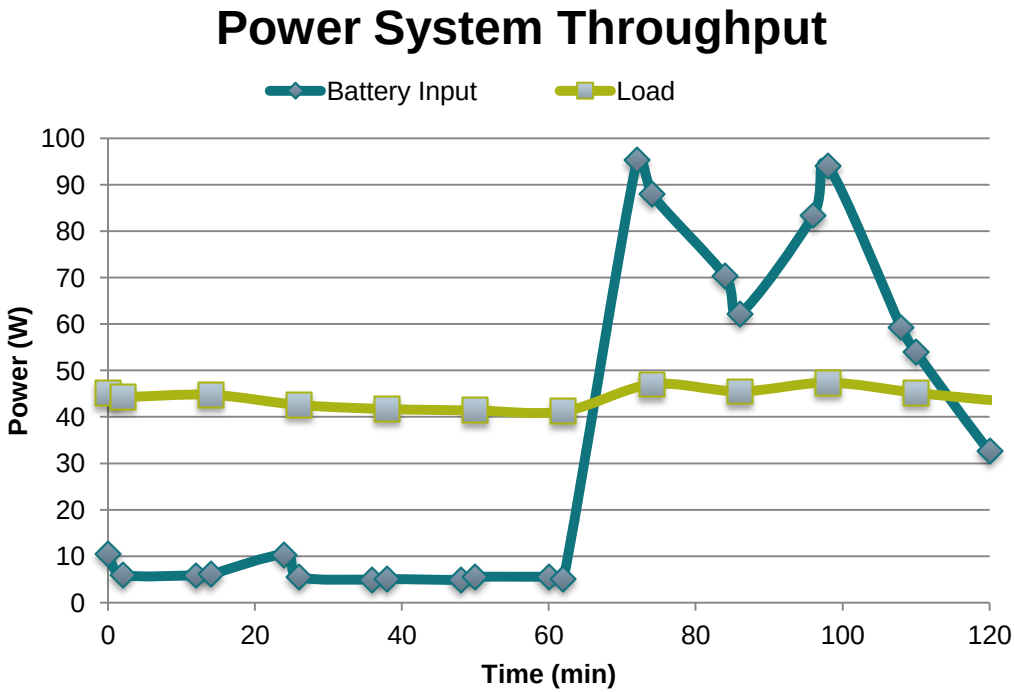


Power System Status



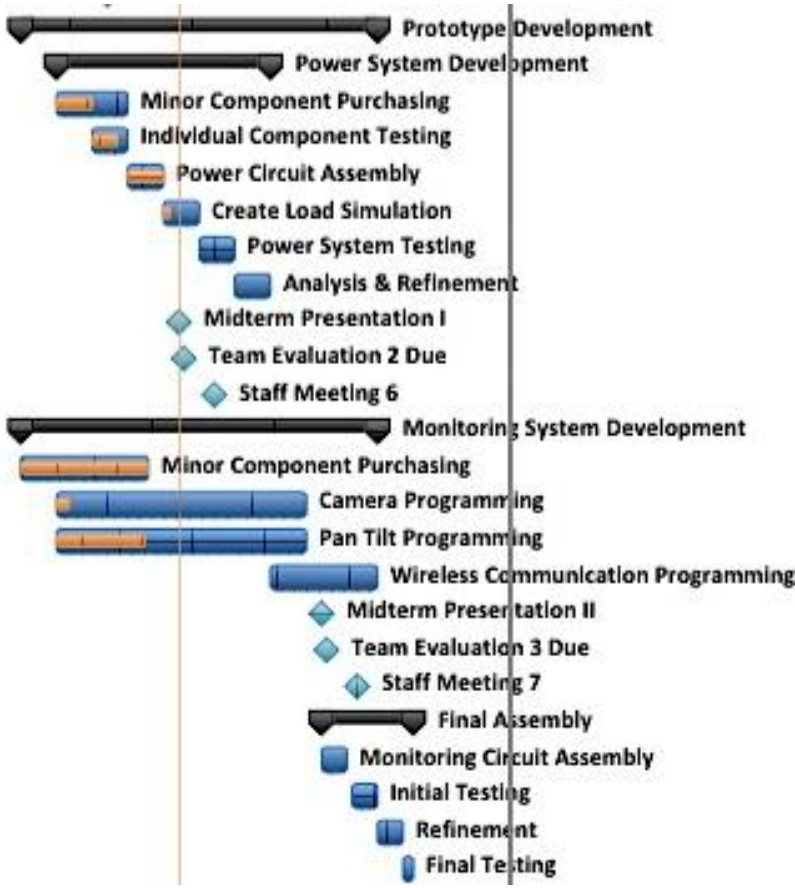
Power System Initial Testing

Power System Circuit Assembly



Moving Forward

Prototype Development	**70 days**	**Mon 1/19/15**	**Sun 3/29/15**	**33%**
Power System Development	**42 days**	**Mon 1/26/15**	**Sun 3/8/15**	**41%**
Minor Component Purchasing	14 days	Mon 1/26/15	Sun 2/8/15	50%
Individual Component Testing	7 days	Mon 2/2/15	Sun 2/8/15	71%
Power Circuit Assembly	7 days	Mon 2/9/15	Sun 2/15/15	100%
Create Load Simulation	7 days	Mon 2/16/15	Sun 2/22/15	15%
Power System Testing	7 days	Mon 2/23/15	Sun 3/1/15	0%
Analysis & Refinement	7 days	Mon 3/2/15	Sun 3/8/15	0%
Midterm Presentation I	0 days	Thu 2/19/15	Thu 2/19/15	0%
Team Evaluation 2 Due	0 days	Fri 2/20/15	Fri 2/20/15	0%
Staff Meeting 6	0 days	Thu 2/26/15	Thu 2/26/15	0%
Monitoring System Development	**70 days**	**Mon 1/19/15**	**Sun 3/29/15**	**31%**
Minor Component Purchasing	25 days	Mon 1/19/15	Thu 2/12/15	100%
Camera Programming	49 days	Mon 1/26/15	Sun 3/15/15	5%
Pan Tilt Programming	49 days	Mon 1/26/15	Sun 3/15/15	35%
Wireless Communication Programming	21 days	Mon 3/9/15	Sun 3/29/15	0%
Midterm Presentation II	0 days	Thu 3/19/15	Thu 3/19/15	0%
Team Evaluation 3 Due	0 days	Fri 3/20/15	Fri 3/20/15	0%
Staff Meeting 7	0 days	Thu 3/26/15	Thu 3/26/15	0%
Final Assembly	**18 days**	**Thu 3/19/15**	**Sun 4/5/15**	**0%**
Monitoring Circuit Assembly	5 days	Thu 3/19/15	Mon 3/23/15	0%
Initial Testing	5 days	Wed 3/25/15	Sun 3/29/15	0%
Refinement	5 days	Mon 3/30/15	Fri 4/3/15	0%
Final Testing	2 days	Sat 4/4/15	Sun 4/5/15	0%



QUESTIONS?

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