



Portland State
UNIVERSITY

Department of
Electrical and Computer Engineering

ECE 411: INDUSTRY DESIGN
PROCESSES

Team 14: Test Plan

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Ver. 1.0

Automatic Bird Feeder: System Test Plan

1.0 Introduction

2.0 Pretest Preparation

2.1 Test Equipment

2.2 Test Setup and Calibration

3.0 System Tests

3.1 Functional Checks

3.1.1 Power Supply

3.1.2 Servo Motor

3.1.3 Photoresistor

3.2 Constant Light

3.3 Covered Photoresistor

3.4 Voltage Limits

3.5 Durability

3.6 Object Speed

3.7 Temperature Effects

3.8 Lighting Accuracy

3.9 Photoresistor and Motor

Test Writer: Uzias Cruz						
Test Case Name: Lighting Accuracy					Test ID #: 3.9	
Description:		Checks to see if the photoresistor functions properly. Users will change lighting and ensure the photoresistor is detecting these changes accurately.	Type:			
Tester Information:		Team Member				
Name of Tester:			Date:			
Hardware Version:		1.0	Time:			
Setup:		Complete bird feeder should be placed inside (or outside) and must be hanging.				
step	Action	Expected Result	Pass	Fail	N/A	Comments
1	Write a program that will detect changes in light.	Program should be able to detect when an object is moving by light (LUX) being blocked to the photoresistor				
2	Place bird feeder on a branch and the user will move objects in front of the photoresistor with changes in distance between user and feeder.	The photoresistor should detect some changes in light once an object is moved in front of it. At close proximity, the change in light will be large. As we move further from the feeder, the change in light will be less and less due to the distance in between.				
3	Plot the changes in light values.	The plot of light values vs. distance from the feeder should be linear.				

Test Writer: Uzias Cruz						
Test Case Name: Object Speed					Test ID #: 3.6	
Description:		Checks to see if the photoresistor functions with varying speed of object. This will be used to determine how fast/slow the object must move to trigger the output.	Type:			
Tester Information:		Team Member				
Name of Tester:			Date:			
Hardware Version:		1.0	Time:			
Setup:		Complete bird feeder should be placed inside (or outside) and must be hanging.				
step	Action	Expected Result	Pass	Fail	N/A	Comments
1	Write a program that will detect changes in light.	Program should be able to detect when an object is moving by light (LUX) being blocked to the photoresistor.				
2	Place bird feeder on a branch and user will move objects in front of the photoresistor with changes in the speed of the object while the distance between feeder and object is constant.	The photoresistor should detect changes in light when an object is moved in front of it. At very slow speed, we expect that the photoresistor will not detect much change. At "normal" speed, the photoresistor should detect the change in light as expected. At very fast speeds, the photoresistor should have trouble or may not detect much change in lighting.				
3	Plot the changes in light values.	Plot of light values vs. speed of object should be an upside-down parabola.				