

EE-595

Sustainable Aquarium System

Team 6



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- Seeking B.S. in Electrical Engineering

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- Seeking B.S. in Electrical Engineering



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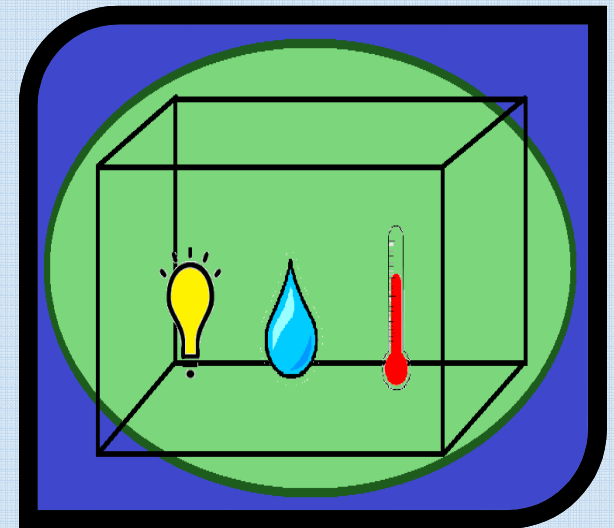
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- Seeking B.S. in Electrical Engineering



Evan Sinram

- B.S. in Physics with minor in Mathematics
- Seeking B.S. in Electrical Engineering



EE-595

Sustainable Aquarium System

Description

Purpose of Product:

Electronic control system designed to stabilize the environment of an aquatic life-nourishing environment.

Features:

Through the use of a computer coupled with a user interface, this product will provide the consumer control over the following environmental concerns:

1. Temperature: Allows for automatic monitoring and adjusting of the aquatic temperature range.
2. Lighting: Programmable LED banked lighting offers the user control over the amount of light introduced to the environment as well as adjustable day and night settings.
3. Feeder: Motorized auto-feeder capable of programmable feeding frequency as well as an empty feeder alert.

Market:

This product has been designed for residential and light commercial usage within the United States and Canada.

EE-595

Key Requirements

Cost:

- Sales Price: \$130.⁰⁰
- Component Cost: \$85.⁰⁰
- Assembly & Test Cost: \$15.⁰⁰

Environment:

Designed for a stationary indoor environment only.

- Operating Temperature: 5°C-60°C
- Operating Humidity: 0%-95%

Power Input(s):

- Residential AC Voltage: 102-132 V_{AC} @ 3.5 A_{max}

Major Functions:

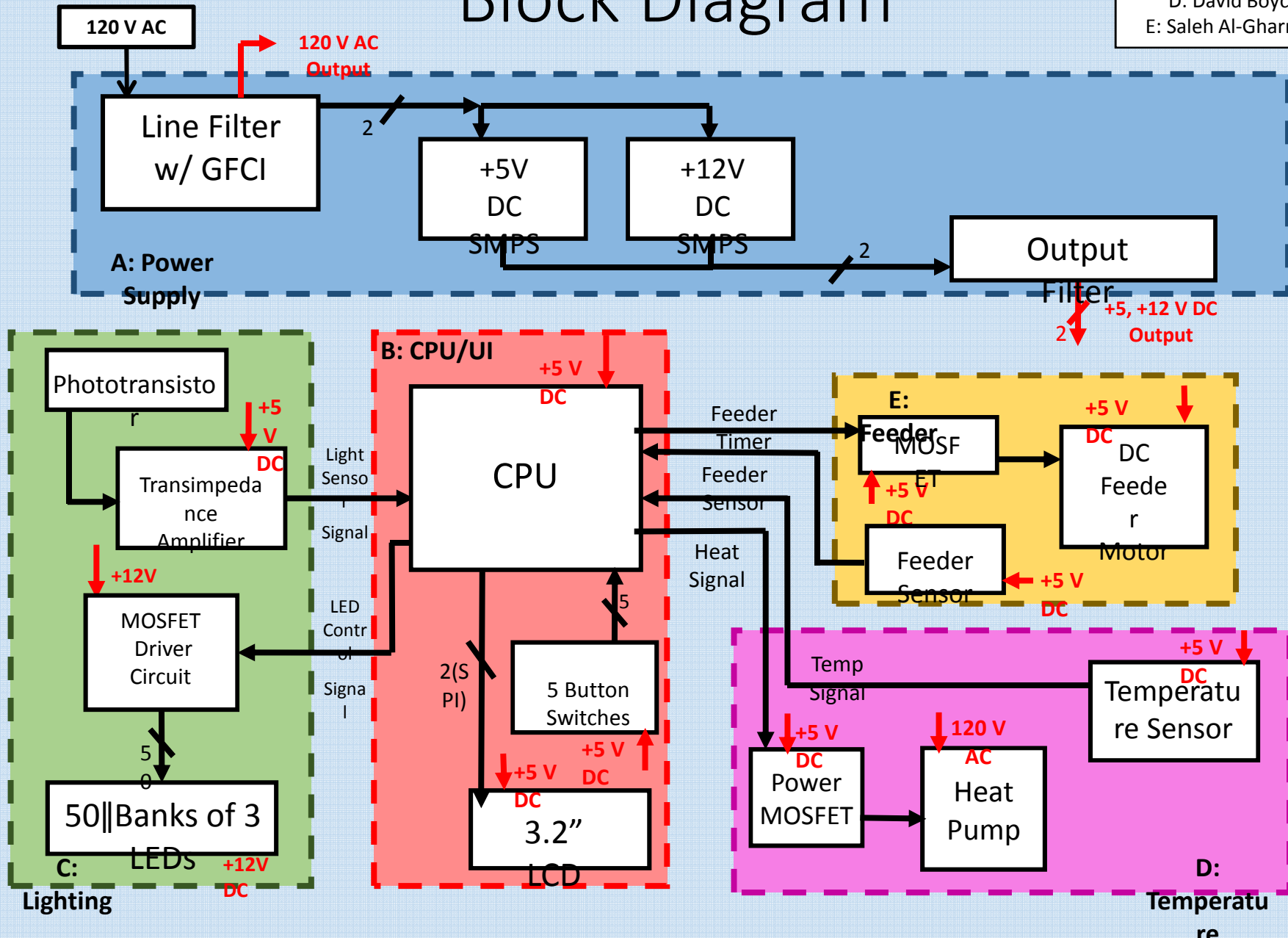
- On/Off
- Set Light Quantity and Schedule
- Set Temperature Range
- Set Feeder Frequency

Quantities Measured, Displayed:

- Temperature:
Range: 0°C-60°C; Sensor Accuracy: +/-1°C;
Control Accuracy: +/-3°C;
Resolution: 1°C
- Lighting:
Sensor Range: 0-6800 lux; Sensor Accuracy: 50 lux; LED Range: 0-200 LED Accuracy: 50 lux; Input Resolution: 50 lux
- Time:
Range: 0-24 Hours; Accuracy: 1 Minute; Resolution: 1 Minute

EE-595 Block Diagram

A: Andrew Kovacich
 B: Jake Van Boxtel
 C: Evan Sinram
 D: David Boyce
 E: Saleh Al-Gharrash



Auto Pet Feeder Team 7



Source:http://www.target.com/p/aspens-pet-electronic-programmable-feeder-cat-bleached-linen/-/A-13966367?ref=tgt_adv_XS000000&AFID=google_pla_df&CPNG=PLA_Pets%2BShopping&adgroup=SC_Pets&LID=70000001170770pgs&network=g&device=c&location=9018836&gclid=CO200vnR_csCFYM2aQod-OsCwg&gclid=aw.ds

Xinye Xu



Jing Chen



Jacob Alward



Ruishuang Zhong



Timothy Sentz



Jingduo Fan



EE-595

Auto Pet Feeder

- Purpose of Product: An automated meal dispenser to provide nourishment for your pets while away from home.
- Feature1: Programmable
- Feature2: Self Cleaning
- Feature3: Monitors food levels
- Market: North America

EE-595

Key Requirements

- Cost
 - \$99.99 (Sales Cost) Component Cost \$50.00, Assembly & Test Costs: \$30.00
- Environment: Indoors, Stationary
 - Operating Temperature (0 C to 50 C or 32 F to 122 F)
 - Operating Humidity Range (30 to 60 %)
- Power Inputs
 - Residential AC Power (120 V @ 60 Hz @ Max 20 Amps)
- Major Functions
 - Dispense Food Amount Determined By User @ 5% accuracy by weight
 - Dispense Water Amount Determined By User @ 5% accuracy by weight
 - Automatic Food Disposal After Eating Period (food is removed)
 - Program (Inputs are 5% accurate)

Block Diagram

Block Ownership

- A. Power Supply: Jing Chen
- B. Feed Circuit: Xinye Xu
- C. Food Removal Cleaning System : Ruishuang Zhong
- D. Sensor system : Jingduo Fan
- E. User Interface system : Jacob
- F. Microcontroller :Tim

