PREPARING FOR FUTURE EXPANSION

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OBJECTIVE
Provide developing regions with the ability to manage and conserve a shared energy source
OUR CLIENTS

SIM International (Burkina Faso)

Theological College of Zimbabwe

IEEE Smart Village™

Primary Client

Secondary Client

Working Partnership
OUR METER

• Measures Power
• Regulates Total Power Consumed
• Displays Useful Information to the User
PLANNING FOR THE FUTURE

1. Mass Production
   
   Design the meter so that it is capable of being manufactured in large quantities

2. Testing
   
   Develop procedures for overall meter evaluation
Mass Production - User Interface Box

- New User Interface Enclosure
- 3D printed model to a purchased model
- Faster: 3D printing = 11 hours each
- Cheaper - $3.62 compared to $10.75

Old Enclosure (3D Printed)

New Enclosure
New Electrical Components

- New LCD Display - Significantly Cheaper
  - $18.75 to $3.30
- New Pushbuttons - Circular
  - Circular holes easier to cut out of the enclosure
User Interface Circuit Board Changes

Old Design

New Design
Final Design
TESTING GOALS

• Develop tests to evaluate the operation of our design

- ACCURACY
- CONSISTENCY
- FUNCTIONALITY
TEST SETUP: PONTIOUS
DEVELOPING TESTS

**STATIC LOAD**

- **High Load**
  - Short Term (24 hr): ~800 W
  - Long Term (4 days): ~40 W

- **Low Load**
  - Short Term (1hr)

**DYNAMIC LOAD**

- Short Term (1hr)
RESULTS

ACCURACY & CONSISTENCY
• Accurate and consistent under lower loads

FUNCTIONALITY
• Emergency allocation
• Estimated time remaining
MOVING FORWARD

- Perform tests on upcoming meters
- Develop tests to simulate field conditions
  - Temperature/Climate
  - Generator power source
- Mass production
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Thank you!

QUESTIONS?