



PREPARING FOR FUTURE EXPANSION

Tommy Martin, Karine Moussa, Nathaniel Pardoe

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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)



Primary
Client

Theological College of
Zimbabwe



Secondary
Client

IEEE Smart
Village™



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

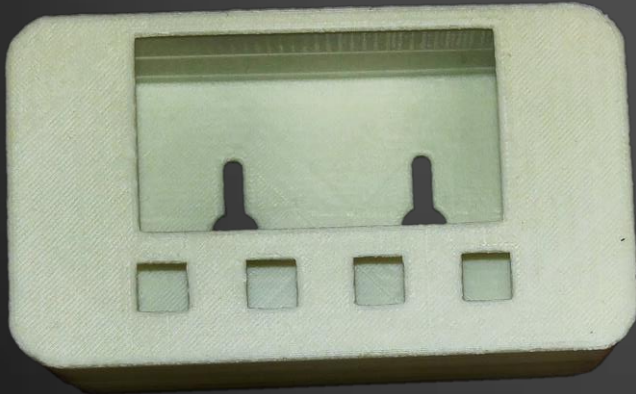
2. Testing

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

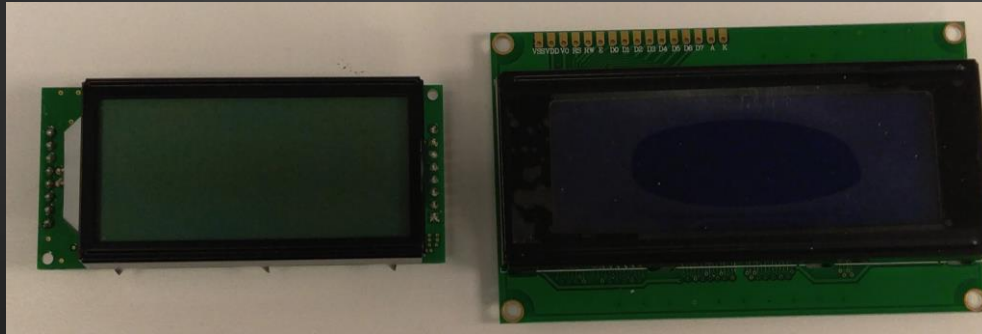


New Electrical Components

- New LCD Display- Significantly Cheaper
 - \$18.75 to \$3.30
- New Pushbuttons- Circular
 - Circular holes easier to cut out of the enclosure

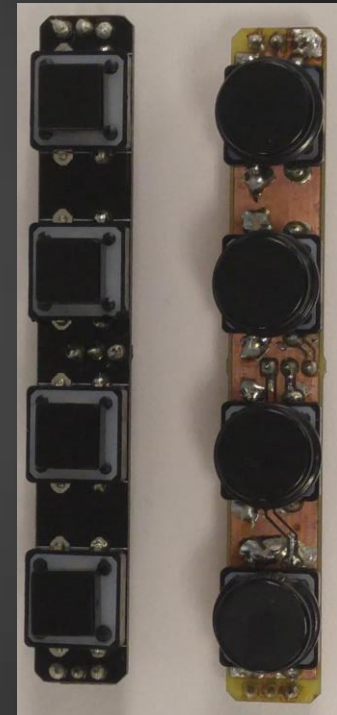
Old Display

New Display



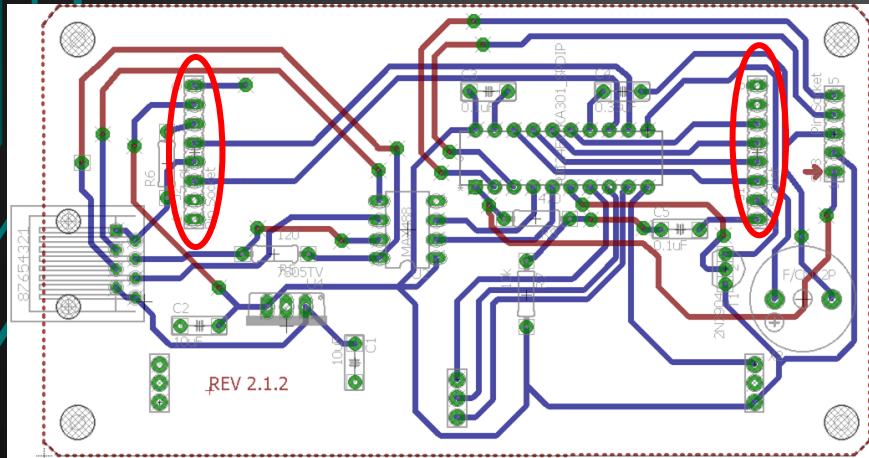
Old

New

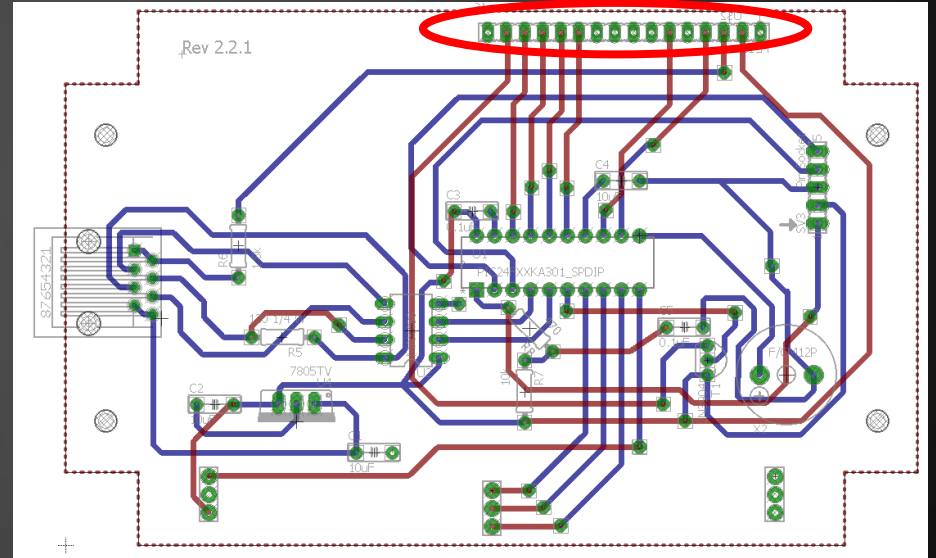


User Interface Circuit Board Changes

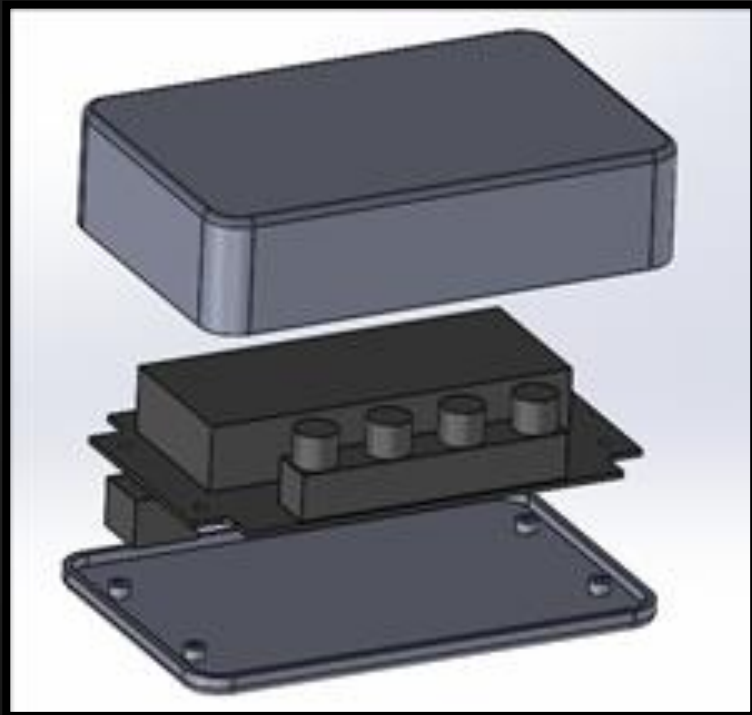
Old Design



New Design



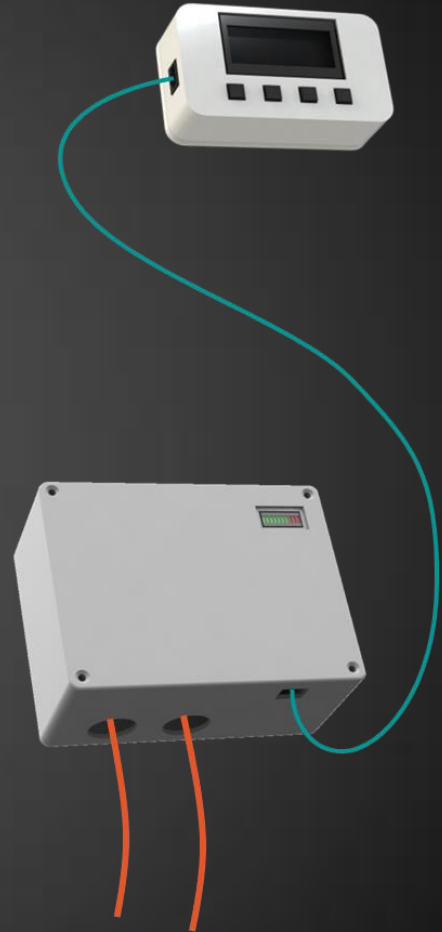
Final Design



TESTING GOALS

- Develop tests to evaluate the operation of our design

- ❑ ACCURACY
- ❑ CONSISTENCY
- ❑ FUNCTIONALITY

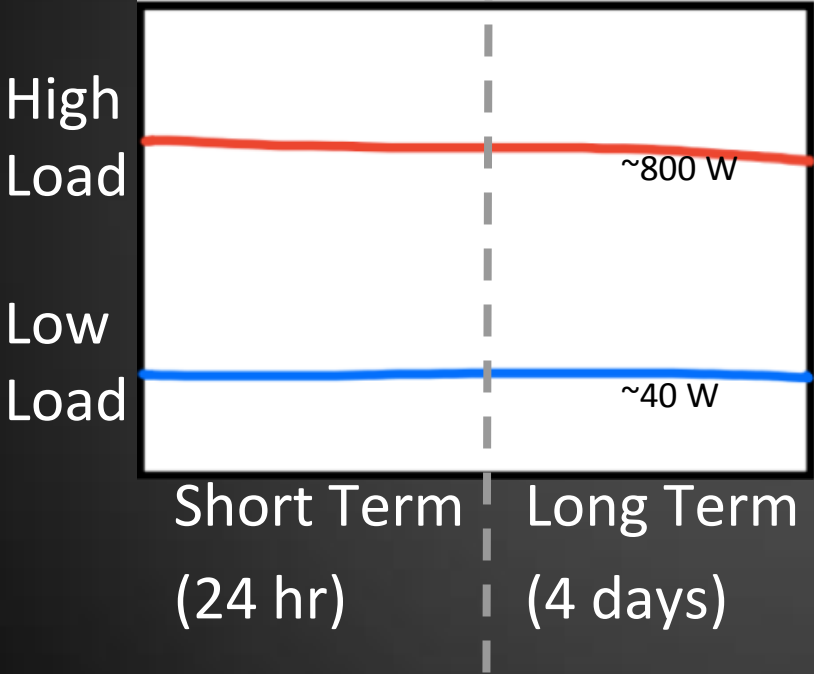


TEST SETUP: PONTIOUS

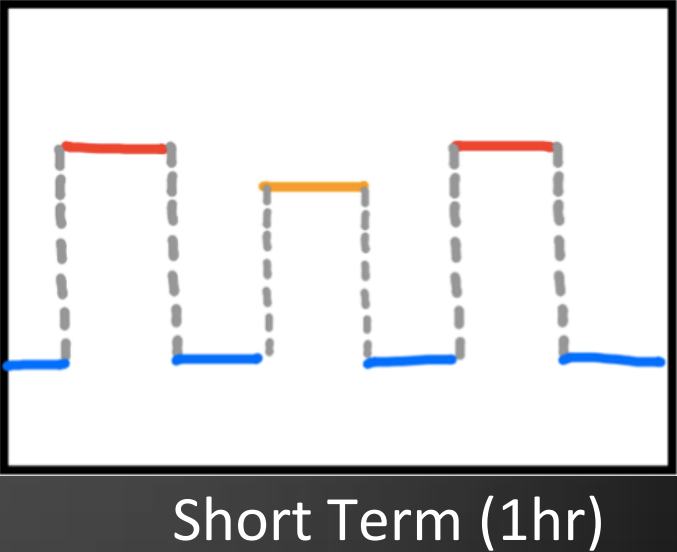


DEVELOPING TESTS

STATIC LOAD



DYNAMIC LOAD



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



ACKNOWLEDGEMENTS

Team Members:

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Project Manager:

Tom Austin

Project Advisor:

Randall Fish

Other:

Paul Meyers





Emms

Thank you!

QUESTIONS?

