

A requirements and design analysis for an interactive online donation interface

Chas Busenburg, Paul Gestwicki¹, Ying Liu, and Jacob Rendall

Computer Science Department

cwbusenburg@bsu.edu, pvgestwicki@bsu.edu, yliu12@bsu.edu, jbrendall@bsu.edu

May 4, 2017

Computer Science Department

Ball State University

Technical Report 2017-01

Introduction

ecoREHAB is a nonprofit organization in Muncie, Indiana, that specializes in environmentally-friendly, economically-sound rehabilitation of houses. The organization started as an immersive learning project at Ball State University in 2009, as a collaboration between the City of Muncie Department of Community Development and the Ball State College of Architecture and Planning. ecoREHAB was successful enough to become an independent non-profit, although it maintains partnerships with the university. Their mission statement is given below.

Our Mission is to provide leadership in ecologically sound and sustainable rehabilitation of existing housing and neighborhoods. ecoREHAB of Muncie, Inc. will engage in activities that include: 1) acquisition and ecologically sustainable rehabilitation of affordable housing; 2) provide resources to aid homeowners and in rehabilitation of existing housing following sustainable design, material and system strategies; and 3) other activities relative to housing that help the community to achieve the triple-bottom-line of economic prosperity, environmental protection, and social equity.

In Spring 2017, Kate Elliott led an undergraduate team of journalism, marketing, and public relations students in a new immersive learning partnership with ecoREHAB, with the goal of revising the organization's branding and Web presence. ecoREHAB has been primarily grant-funded, and one of the goals for the revised Web site was to accept donations from the community, including local residents and university alumni.

As a part of Dr. Paul Gestwicki's research and design course (CS 691) at Ball State University, a collaborative effort was established with Kate's class. Their main initiative was on the re-branding process for ecoREHAB while the donation system for the organization was the primary focus for our CS 691 course. The aim of this project was to design and develop an interactive donation system for ecoREHAB, with the main learning goal from the interaction being given below.

Houses can be rehabbed in an environmentally-friendly way, although it takes resources (time, money, knowledge).

This report presents the design process used by our class for the donation system.

Design

Donation systems are a primary component for raising funds for nonprofit organizations. Though a donation system can be as simple as having a user input a monetary value and then payment information, this is not the way our group originally approached developing the system for ecoREHAB. The first step that was taken

¹Corresponding author

involved meeting with both ecoREHAB board members and Kate to discuss their ideas on how they would like donations to be processed and accepted. From this initial meeting, several key points were made that would go on to serve as a foundation for how we believed the donation system should function and appear like to users. A few major points from this meeting included the following:

- Show different categories involved in building a house.
- Give user eco-friendly information when a category is selected.
- Interactive "house" or display to allow user to select type/amount of donation.

Using these concepts, our team's next step was to identify a process to implement the ideas.

In order to complete a design of the desired ecoREHAB donation system, our process began with drawing sketches of how a potential donation page would look. At this point we were aware that Kate and her team had acquired the Pena Wordpress theme to develop the new website for ecoREHAB, so our implementation for the donation system would be integrated into this website. Different members of our team drew a variety of preliminary design sketches to be evaluated. Several of these basic designs are shown below in Figures 1-3.

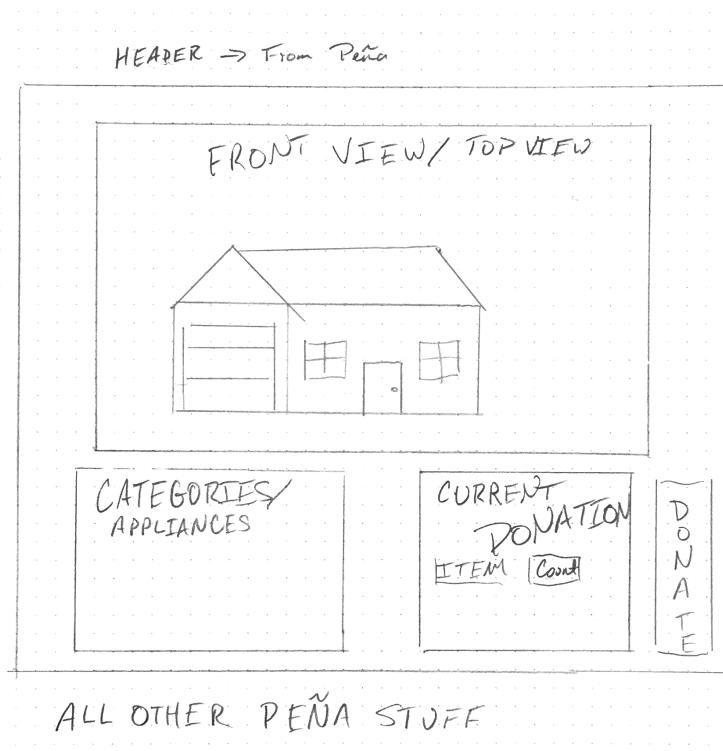


Figure 1: A basic example of a donation page.

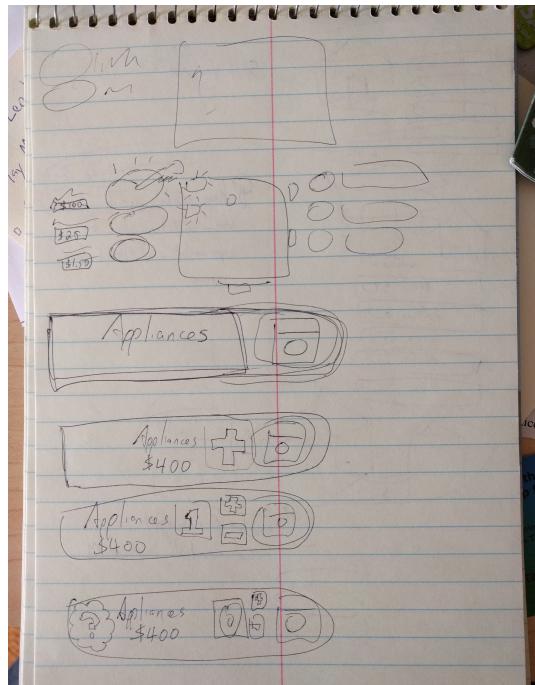


Figure 2: A donation page with unique symbols to identify the different categories.

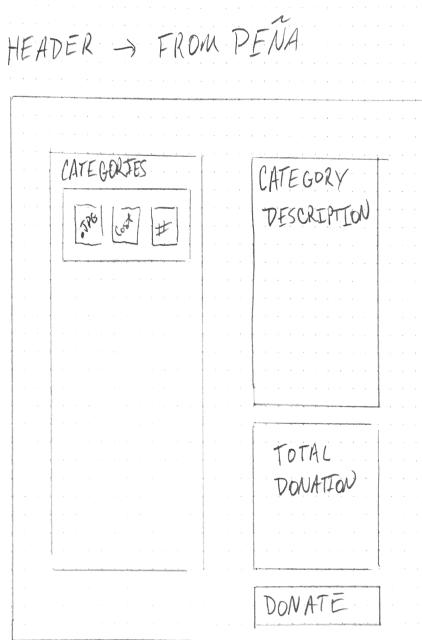


Figure 3: A simple donation page that incorporates the ability to view more information about each category.

Once we had these basic sketches in hand, our team debated which features were good and/or necessary as well as those deemed to be out of the scope of the project. From his discussion, it was determined that the points of emphasis that would need to be implemented on the donation page included showing the different categories involved with building a house, a short description of each category, and adding to the donation based on an amount within a category. Since the original idea was to create an interactive experience for when the user makes a donation, we determined that the interactivity would be a result from clicking on a category's symbol, resulting in the information display as well as highlighting a portion of a house related to the category. Before attempting to implement this design, we developed a paper prototype to test its effectiveness. The prototype our team created can be viewed in the Appendix.

After testing the paper prototype internally, we needed some external validation before moving towards implementing the system we had designed. During a meeting with Kate, she was able to test our prototype and provide feedback. This feedback included both how she thought the prototype worked and her thoughts on how the donation page may need to appear on the website. From this meeting, our team determined that, although the interactivity element for ecoREHAB's donations is interesting, it fell out of the scope of our project due to time constraint and lack of experience with graphic design. At this point in the process, we determined that a basic donation page was needed, which included information and/or prompts about donating to ecoREHAB and buttons to input the donation amount for a user.

With a new look at how the donation page needed to function, our team began to develop a web page that would include only text and donation buttons. We developed this donation page using HTML and AngularJS. After implementing a new aspect of the donation page, we tested it by loading the web page into our development environment, which included the Pena theme being used by Kate's team on the new ecoREHAB website. One aspect of doing a donation page that came into play at this point was how to process the donations. We determined that using a third party software would be best, so we set a PayPal account that would process all the donations. The donation buttons were made to take the user to PayPal to finish paying for the donation, and upon completion the user was then returned to the ecoREHAB website.

After thoroughly testing the donation page we developed, the last step in the process was to add the page onto Kate's website. At this point we ran into a major problem. While testing, we had been using a Wordpress.org environment, whereas Kate's team had been working in a Wordpress.com environment. We found out that Wordpress.com does not allow for JavaScript to be used. Thus, the donation button, which was developed using AngularJS, could not work. After diagnosing the problem, we were able to do a workaround by making buttons that Wordpress.com allowed (using <https://dabuttonfactory.com>) to include the redirection from the ecoREHAB site to PayPal so donations could be completed. A small glimpse of how the donation page turned out is shown below in Figure 4.



Support vital education and revitalization efforts to advance your community and promote sustainable housing. Every gift matters as we work together to improve the quality of life Muncie, so please *give what you can, when you can*.

Invest in building a sustainable future

Donate online by picking from the following options:

\$50 \$75 \$100 \$250 Other

CONTACT US

PO Box 137
Muncie, IN 47308
765-702-5966
info@ecoREHAB.org

Figure 4: Part of the donation page developed by our team.

The final donation page we created can be found on Kate's website at <<https://loveandtruthiness.wordpress.com/donatevolunteer/donate/>>.

Conclusions and Future Work

The design process of the donation system for the non-profit organization ecoREHAB has been presented in this report. After developing several different preliminary designs for the donation web page were made, the main aspects for the interactive element of the system were established. These included clickable category symbols that would allow users to view extra eco-friendly information about the selected category. After testing this interactive element, although deemed useful, it was determined that with that this component could not be completed due to a lack of certain graphic design skills and the time remaining to the project's due date. The interactivity was also not necessary for the donation system to function. This led to our team creating a simple donation system using buttons that the user can interact with when attempting to donate to ecoREHAB.

In the future, this interactive donation system can easily be implemented as described in this report. The team completing this task will need some graphic design experience in order to ensure high quality of the interactive images. Beyond what has been described, another potential avenue for donation interactivity is to keep progress of the donations coming in. In the context of building a house, progress could include the donation amount that has already been put towards a house and the remaining amount of money needed to complete the project. An design example of such a system is shown in Figure 5.

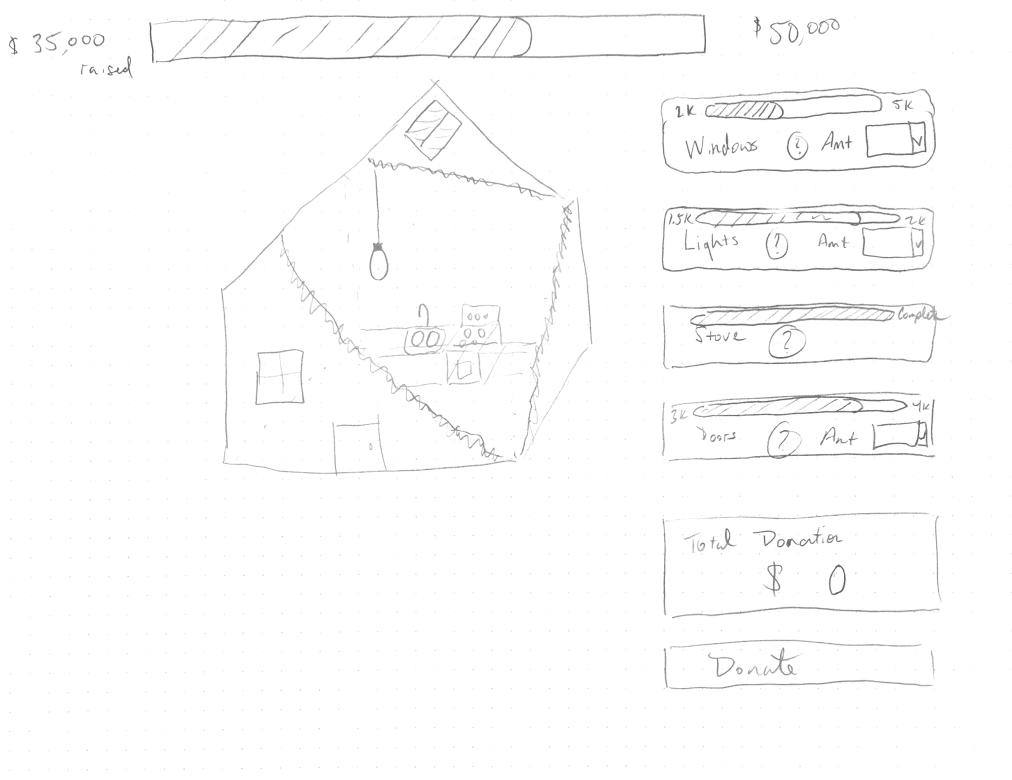
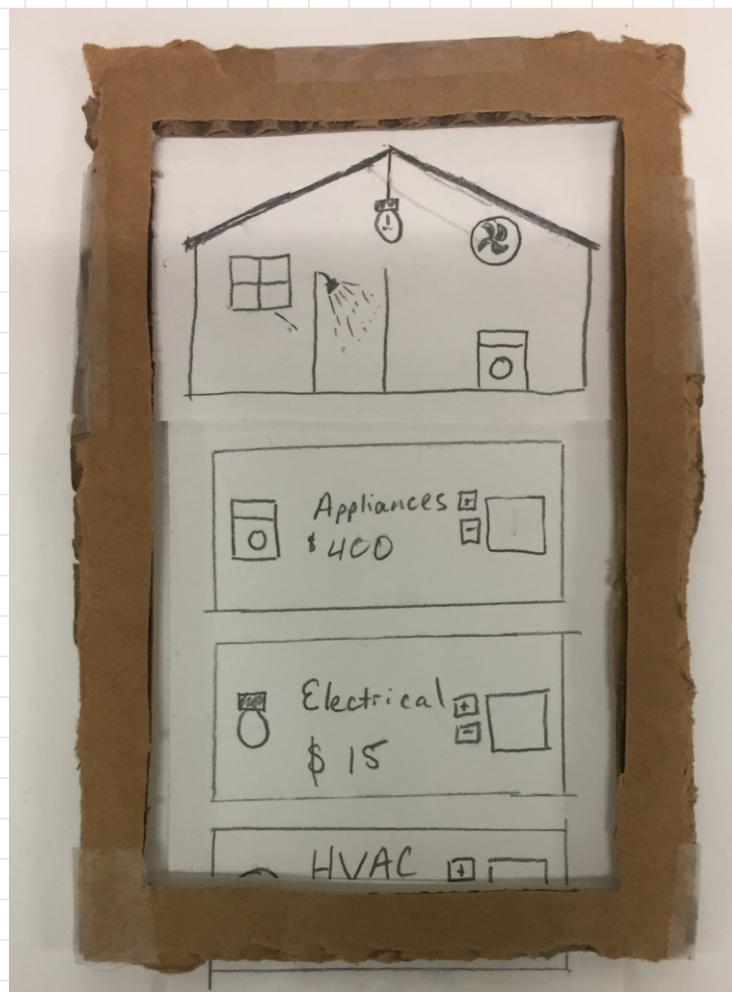


Figure 5: Design that included progress bars towards the total amount needed to build a house.

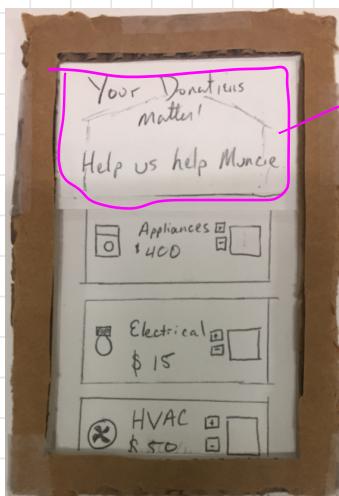
Appendix

EcoRehab donate page design -paper prototype

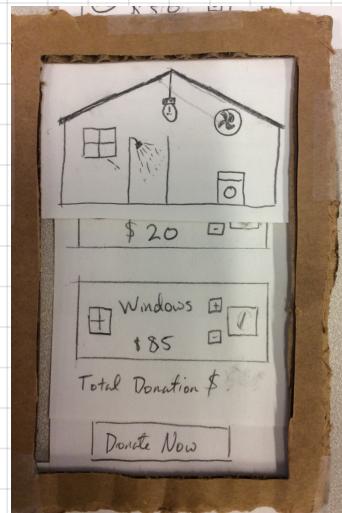
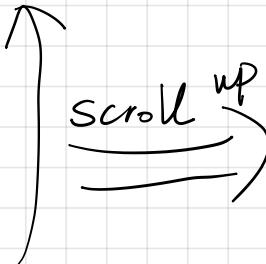
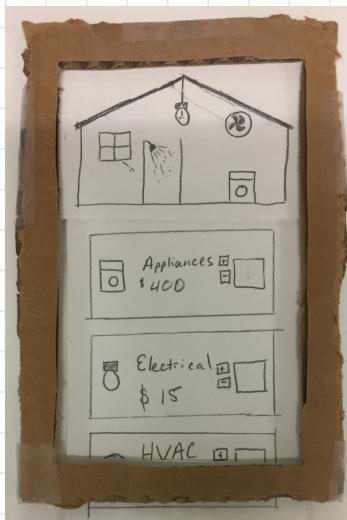


Donate Page on Mobile Device

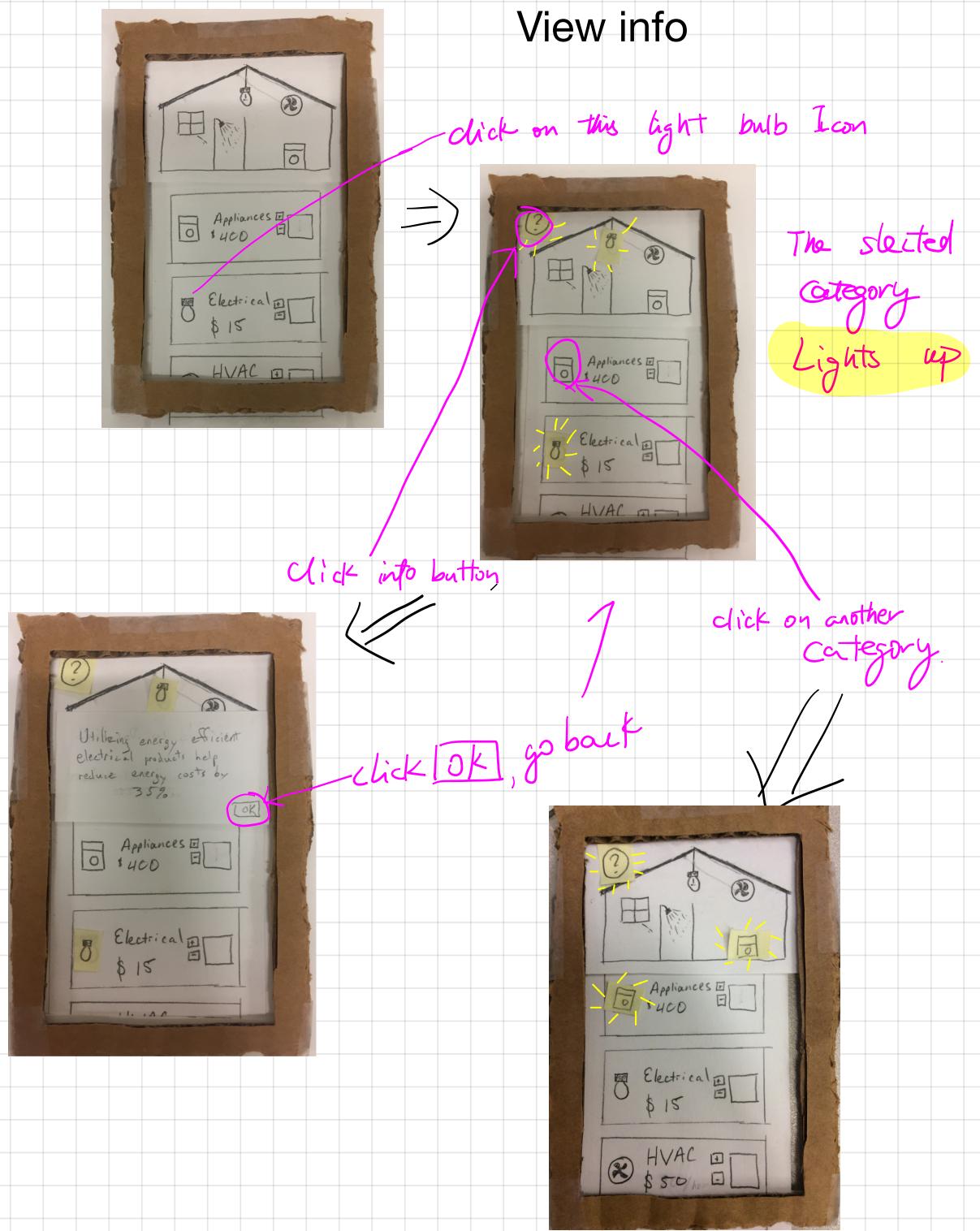
Starts here



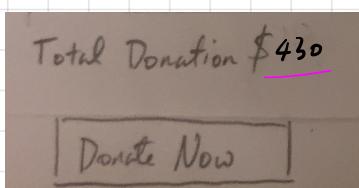
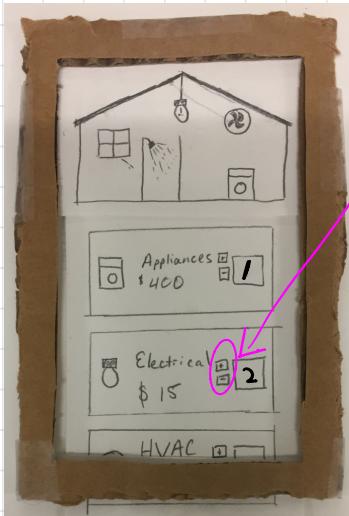
This window is designed to show
for 3 seconds then move up and
go away



View info

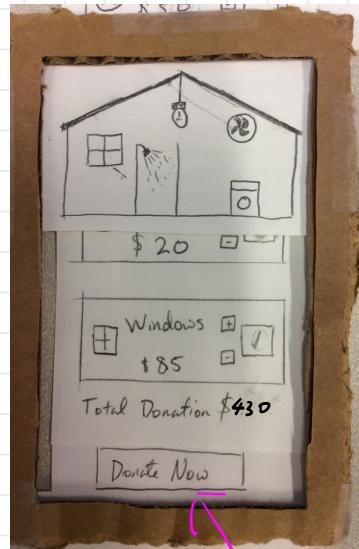


Select donate amount



Use and
To select donate amount

scroll up



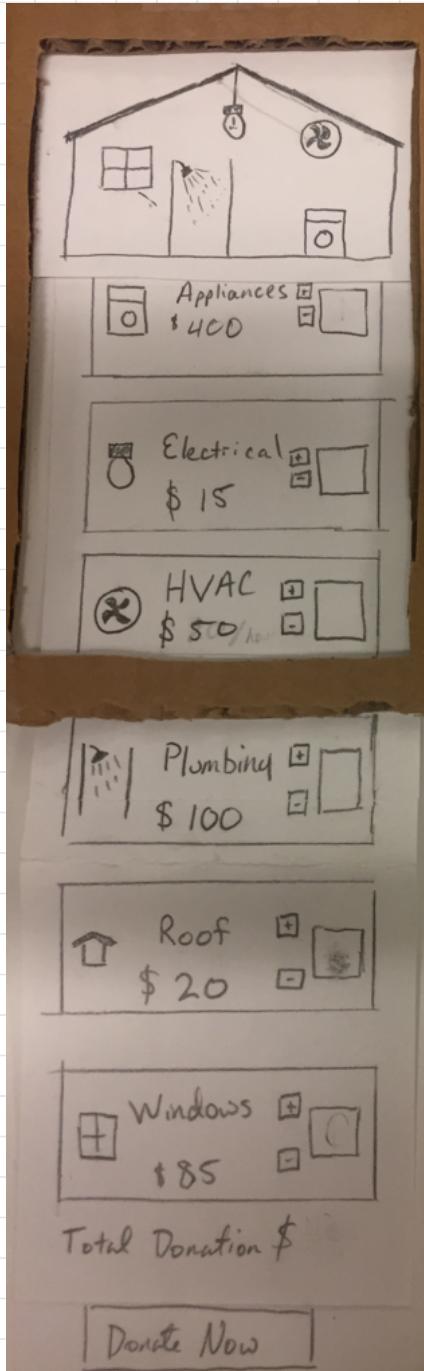
Total will
be updated
in background.

click



Donation
Finished!
Thank you!

All components we have



Your Donations
matter!
Help us help Muncie.

Utilizing energy efficient electrical products help reduce energy costs by 35%.

OK

High-efficiency plumbing can help save on water, energy, and money

OK

Efficient heating/cooling systems reduce living cost by 20%

OK

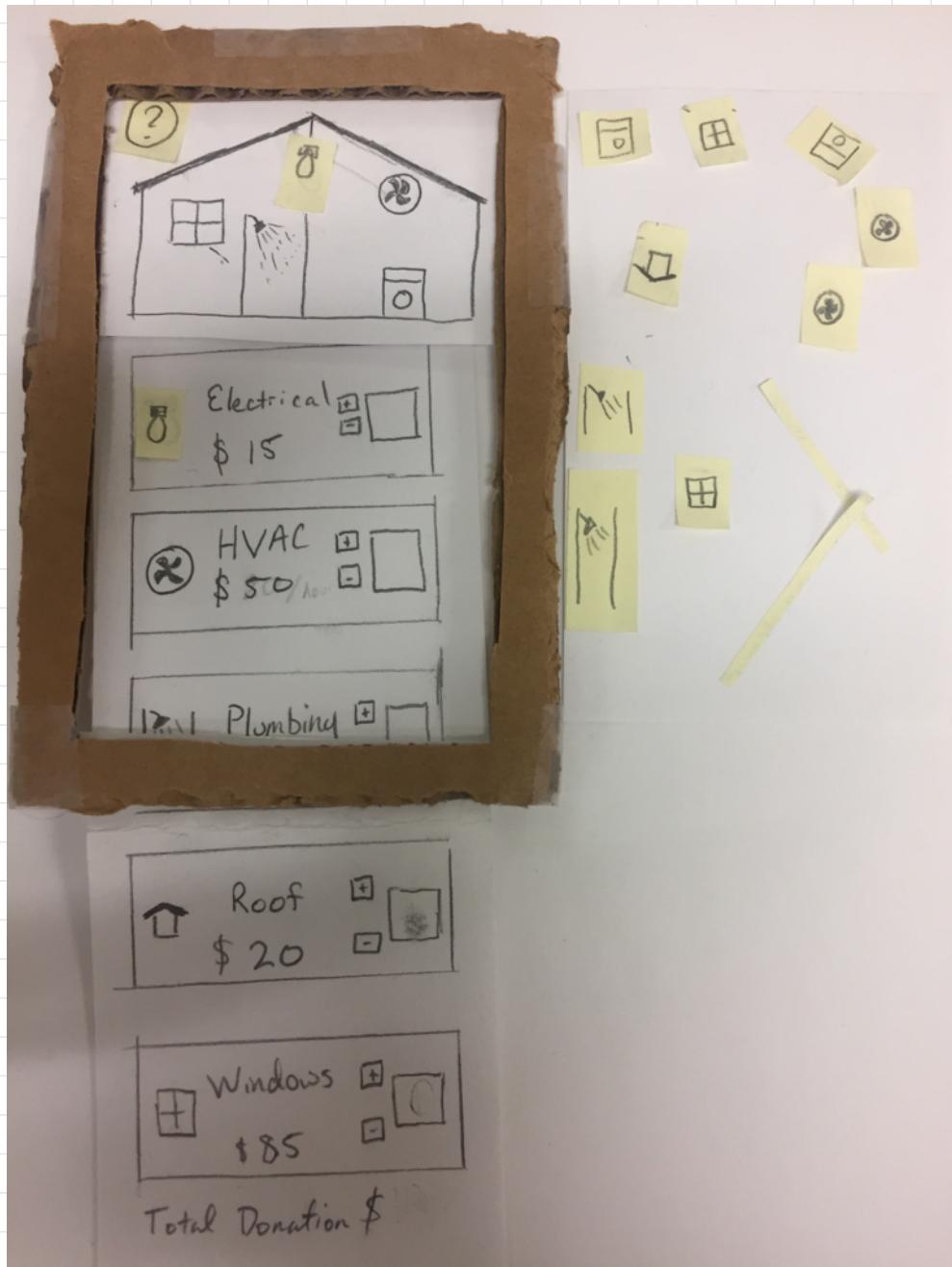
Energy star roofing products can help reduce both heating and cooling costs by 10 - 15%

OK

Energy efficient windows can reduce overall energy costs of a house by 30%

OK

All components we have



Page 2