The Story

Summary

Electricity consumers are in need of easier ways to conserve electricity. They need to switch household appliances on and off, monitor their electricity consumption, receive alerts and purchase electricity tokens in a much more convenient way.

Storyline

For some time now, South Africans have been subjected to “Load-Shedding” where power in certain areas is switched off during peak power consumption hours. This is due to the high demand of electricity and low supply of resources to sustain this demand. Government has implemented strategies to reduce demand by electricity saving programs and increased electricity tariffs. This has put a lot of pressure on the South African consumer to reduce their electricity consumption.

Case Studies

A geyser can be compared to a kettle that’s always on. Once the geyser reaches a certain temperature, the thermostat switches it off. Once it drops below a certain temperature, it goes back on again. However, if hot water is not needed, for instance when you’re away from home, why would you need the geyser to continue its cycle? However, in the same vein, it’s a bit annoying coming home from a long day of work and all you want to do is take a hot shower, but the geyser is off!

Due to high crime rates in SA and a lot of break in’s, when people travel, they tend to request their neighbors or loved ones to switch on their lights to somewhat “simulate” them being home (to avoid a break in). This might become a bit tedious and time consuming to the person doing the deed. This could also lead to unnecessary electricity wastage.

In South Africa, a prepaid electricity meter system is used in households. Electricity tokens are purchased at shops or via other mechanisms (e.g. banking apps, etc.) and a voucher number that’s issued is punched into the meter. What would happen if you were to be away from home for a long time and your electricity runs out? What happens to the food in your fridge/freezer?
Persona

Mia
SAP Consultant
“Work hard, Play harder…”

About
• 26, single, 5 years of SAP experience
• Being an SAP consultant, I’m constantly travelling abroad, looking for new opportunities. My lifestyle is highly erratic, never in one place for more than 2 months at a time, but I enjoy it so much
• The fast life is great, but sometimes I miss coming home to a hot bath with a nice glass of wine
• Being so young and on my path to success, my expenses are skyrocketing and I’m constantly looking for ways to save some money here and there.

Responsibilities
• I’m responsible for supporting all my different clients domestically and internationally (remote work is not possible)
• I spend most of my day at the office if I’m not travelling
• I own a house where I pay the bond and all utilities
• I try to save the planet by not wasting electricity and water

Needs
• I need be re-assured that my house is safe when I’m travelling.
• I would like to get home to hot water without leaving my geyser on the whole day.
• I need electricity tokens to be purchased online and loaded automatically.
• I need to know the status of my household appliances and lights while I’m travelling. I also need to be reminded when I don’t have enough electricity tokens.

Main Goals
• Save money by reducing expenses
• Save the planet by reducing my carbon footprint
• Be aware of the status of my house whilst traveling. E.g. are there appliances in my house that are on that should be off. This way I can reduce wastage.

Pain Points
• I have to ask my neighbor to switch on my lights when I’m travelling.
• I come home to a cold geyser because I switch it off when I leave to work. I then have to wait for it to get hot before taking a bath.
• The shop that I purchase electricity tokens from is too far. Also, it’s a pain entering in the long token number; if one digit is wrong, I have to enter the whole number again.
• Sometimes when I travel I forget to switch off the geyser, or buy enough electricity tokens.
## UX Journey

<table>
<thead>
<tr>
<th>Action</th>
<th>Mindset</th>
<th>Feeling</th>
<th>Touchpoints</th>
</tr>
</thead>
</table>
| • Wake up, shower  
• Switch off Geyser and other appliances  
• Go to work | • Did I remember to switch off the lights and geyser?? | 😞 | • Circuit Board  
• Light Switches |
| • Requested for urgent travel out of town for 2 days  
• Phone neighbor to switch lights on and off | • Is my house going to be safe when I’m away? | 😞 | • Client in need of urgent assistance  
• Neighbor |
| • Arrive at destination out of town | • Damn, I forgot to buy electricity again!  
• My food in the fridge is going to spoil! | 😞 | • Neighbor  
• Electricity Meter |
| • Return home  
• Phone neighbor for checking if there’s enough electricity tokens  
• Throw spoil food away | • I can see my neighbor is getting annoyed with checking up on my house while I’m away. Maybe I should buy him a thank you gift  
• This is such a waste of good food | 😞 | • Neighbor  
• Fridge/Food |
| • Go to shop to purchase electricity tokens  
• Shop owner says token machine is offline  
• Go to another shop to purchase tokens  
• Enter tokens in the meter | • This is by far the most annoying process ever! | 😞 | • Shop keeper  
• Electricity Meter |
| • Switch geyser on  
• Wait for water to heat  
• Take a long relaxing bath | • I guess I’ll just have a glass of wine while I wait for the water to get hot  
• The geyser is taking so long to heat up | 😞 | • Circuit Board |
Point of View (POV)

As a home owner I need a way to monitor and configure my household electricity appliances and lights, so that I can save electricity, reducing my carbon footprint and saving money.

The_SWITCH

The above cases were the motivation behind The_SWITCH – an IoT device that is connected to your circuit board, electricity meter and geyser which will allow the user to:

- Switch the geyser, lights, and other appliances on or off
- Monitor what appliances/lights are on or off; Monitor the geyser temperature; Monitor the amount of electricity tokens currently available and purchase more tokens
- Set alerts, reminders and timers

The touchpoints can then be integrated and controlled over the internet via a simple, easy to use WebApp on your mobile device or computer.
Prototype - Sketch

1. **Master Page** – the Master Page serves as the home page and is the first page that users are presented with when opening the app. From here, the user is able to navigate to all of pages. All back buttons (top left corner) leads back to this page.

2. **Connected Smart Switches** – This page allows the user to switch any connected smart switches on or off, thereby controlling their circuit board. They’re also able to select the timer icon which leads them to the Alerts and Timers page (5).

3. **Monitor** – The Monitor page allows the user to monitor their geyser temperature, current electricity tokens, and electricity consumption. A real time graph will be made available for further monitoring efficiency.

4. **Purchase** – The user can use this page to purchase electricity tokens directly to their electricity meter. A combo box containing the users’ bank account details are made available on the page. This will be preconfigured.

5. **Alerts and Timers** – Alerts can be set once certain thresholds are reached. For example, users can be notified when current electricity tokens drops below a certain amount of units. Functionality will be added in the app so that the user can be notified via SMS, Pop-ups, Phone Call and emails. Timers are also viewed and configured on this page for smart connected switches to be switched on and off at certain times.

6. **Settings** – Basic user login, settings and preferences can be configured in the settings form.

7. **Help** – Basic info on the various pages can be displayed in the help form.
Prototype – BUILD

URL: https://standard.build.me/api/projects/6e1bf26e2bb5e65b0cd12793/prototype/snapshot/latest/index.html#/14772561644871113_S0

If you don’t have a BUILD account, please use the temporary user and password:

Username/Email: The_SWITCH@yopmail.com
Password: The_SWITCH8

Select the Timer icon to create timers for your connected smart switches. On the actual app, this will be done via a popup with extra functionality. However, this wireframe will navigate to Alerts and Timers.*

Select the tiles to navigate to the relevant pages
Select the Settings or Help icons to display the relevant page

Select a tile to navigate to the relevant page

Smart Switches: Turn your connected household items on or off. Select the timer icon to create a schedule for your switch.
Monitor: Monitor your geysers temperature, electricity tokens and electricity consumption
Purchase: Purchase electricity tokens directly into your electricity meter. Bank accounts that have been previously configured can be selected.
Alerts and Timers: Configure thresholds to get alerts. Create on/off timers for all switches on your circuit board.
Settings: Configure all settings: Account details, Measurements, Meter Number (pre-configured), etc.
*Please note that this is only a wireframe. There’s not much functionality in it, besides navigation. Once the conceptual/planning phase is complete, the app will be developed with added functionality and some cosmetic changes.