



## Microwave Oven 2.0: Infigo

You walk up to a microwave oven you've never seen before, open the door, put your head in, and take a big whiff. How does it smell? Most likely you are imaging something stale and a bit gross. You see, even when users tend to the arduous task of cleaning their microwave ovens, over time, the ovens lose the ability to get totally clean. The junk yard is full of perfectly functional microwaves with service lives cut short simply because their presence was less than fresh.

To combat this phenomenon, make the interior replaceable, or better yet, removable and washable. The Infigo microwave has ceramic interior panels that simply slide in and out, allowing the user to keep the interior fresh and sparkly clean with ease.

Now that the user isn't throwing away the microwave because of a less than pleasant presence, it is more likely to reach a point where it needs repair. Making it possible for the user to fix it on their own would be great, but microwave ovens tend to be the most dangerous appliance to fix in most households. High voltages at potentially very high currents are present when in operation - a deadly combination. And the dangers do not go away when unplugged, as there is a high voltage capacitor that can retain a dangerous charge for a long time after.

The solution is the solid state microwave oven. This technology which has recently been developed by the Chinese consumer electronics giant Midea uses less power in a smaller footprint. The Infigo capitalizes on the fact there is no magnetron or heavy transformer, so it's inner elements can be handled safely by its end user.

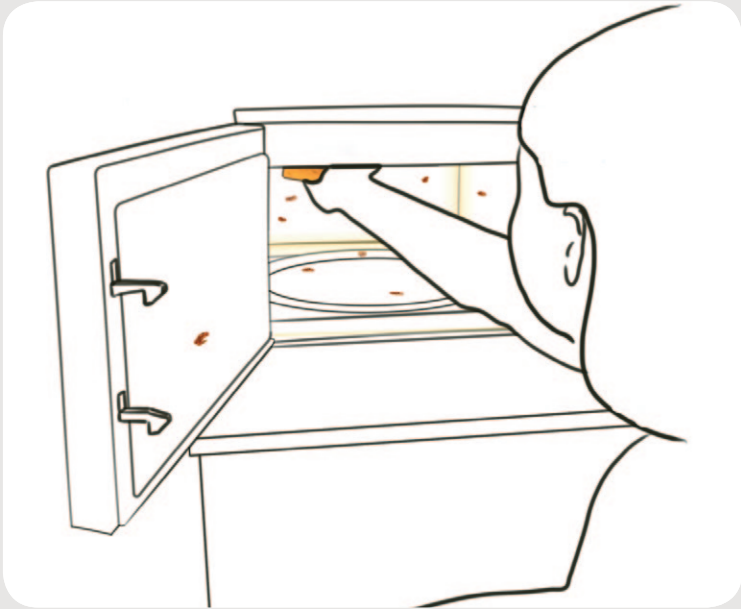
So this microwave has the physical capability to remain fresh indefinitely and be repaired easily and economically. Is that enough? Thinkers like Jonathan Chapman, author of "Emotionally Durable Design", say it is not. To truly address the issue of sustainability, we need to delve deeper into the reasons why users part so easily with their products. There is little point into designing physical durability into consumer products if consumers lack the desire to keep them. Objects must be developed which engage users on a deeper and more profound level, delivering intense and sophisticated experiences that slowly penetrate the user's psyche over longer and more rewarding periods of time.

To address this, the Infigo can be upgraded, allowing the user to consume new experiences with the same device. First, the Infigo can be fitted with a camera and a food recognition algorithm, which gets to know the foods we eat and then, using a cloud database with other users, makes suggestions on how to cook or warm them. The second update concerns how we will conform to thinking in unnatural ways when it's required, but prefer for things to conform to us. In the case of the microwave, we don't care about the time the food cooks. We care about its temperature. A thermal imaging system senses the temperature of the food and then uses a system to direct microwave energy where it's needed.



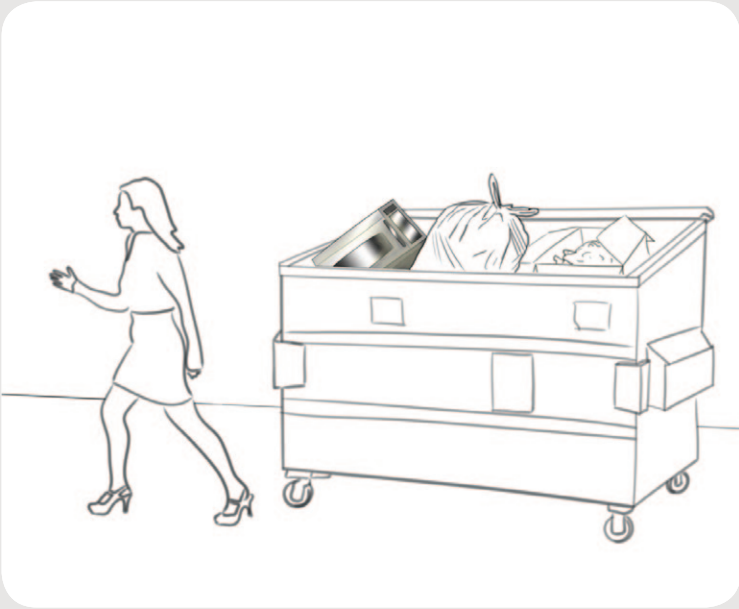
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## Every Kitchen’s Dirty Little Secret



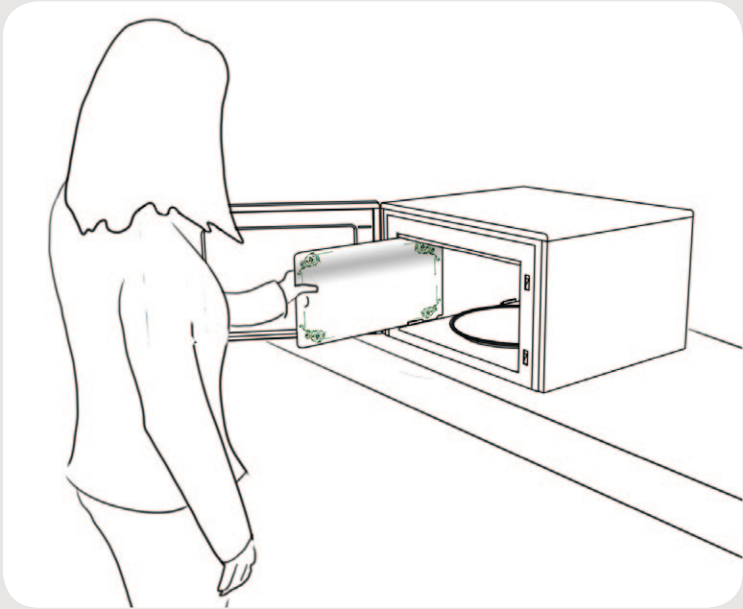
### Jenny Hates Cleaning the Microwave...

...as it is such an arduous task, but she does it when it gets gross enough. Lately though, it seems no matter how much she cleans it, it still smells funky.



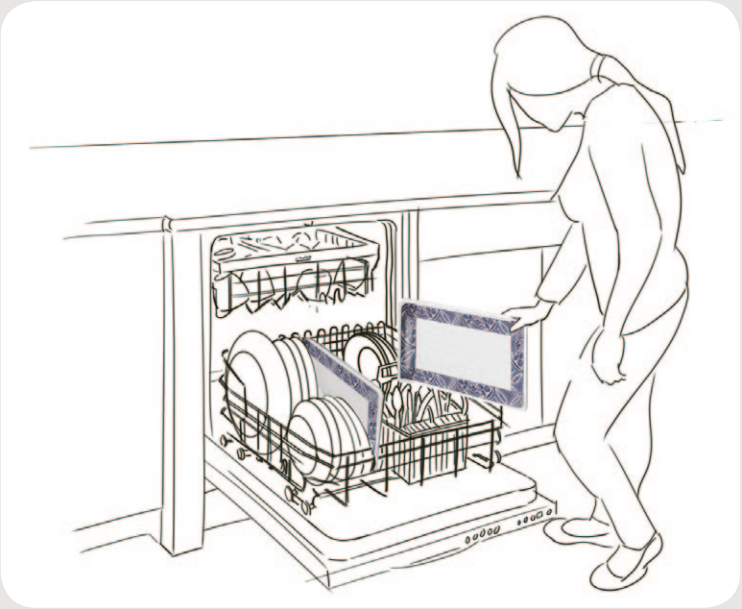
### Jenny’s Had Enough.

She feels bad about throwing away a perfectly functioning microwave, but frankly she cares about having a clean kitchen even more.



### She Feels So Much Better...

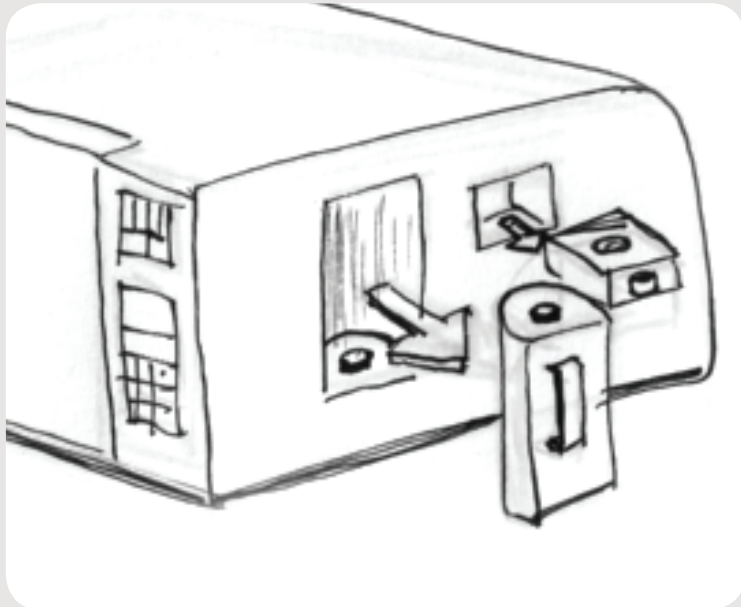
...about her new Infigo microwave! The inner panels slide right out, so now when the interior gets gross, she can replace them without having to get a whole new appliance.



### Easy *and* Effective...

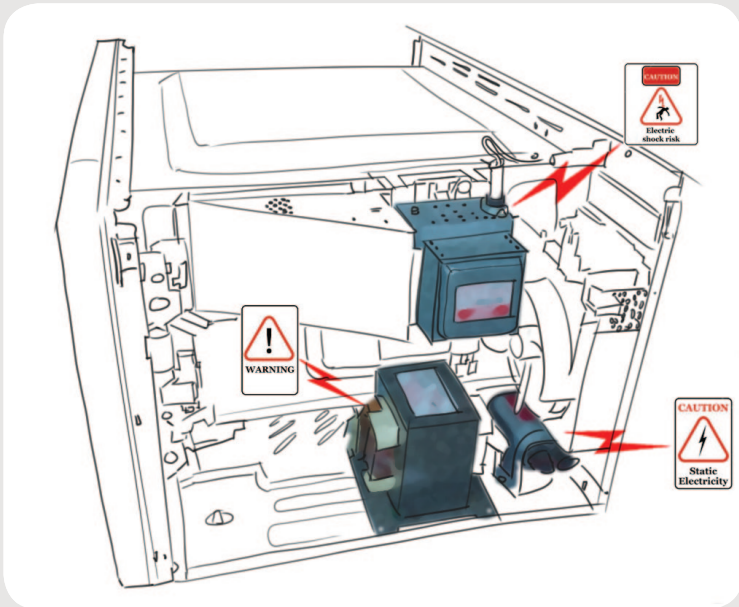
Though she’s not sure that’s even going to happen. It’s so easy to toss the ceramic linings into the dishwasher, her microwave continues to seem as fresh as the day she bought it.

## The Fixable Microwave



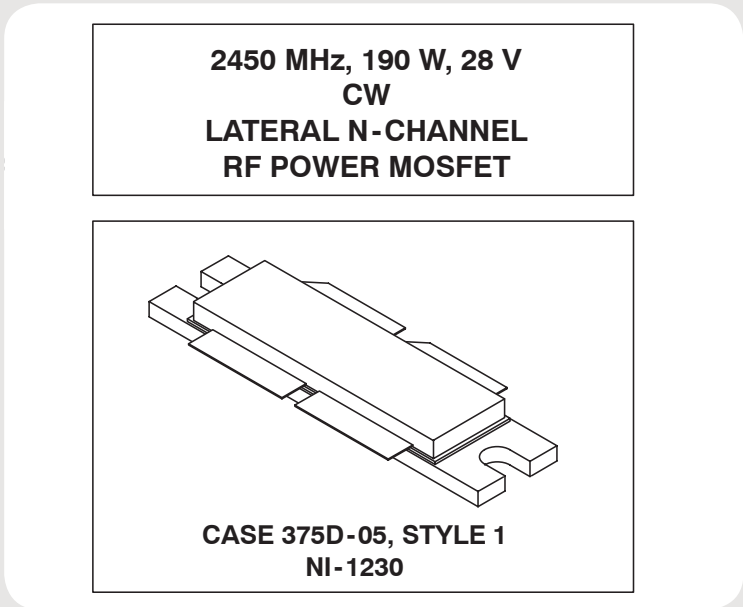
### The Good News.

Microwave ovens have relatively few components that could be fit into modular assemblies that ‘plug’ into the microwave, enabling repairs with procedures similar to changing a battery.



### The Bad News.

Current microwave ovens are the most dangerous appliance to fix in most households. High voltages at very high currents are present even when unplugged - a potentially deadly combination.



### A Recent Innovation...

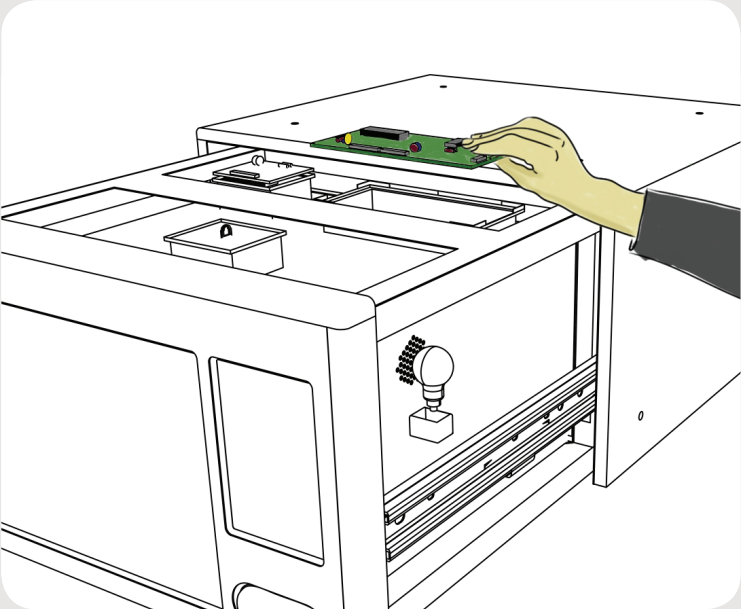
...is the solid state microwave oven. Using lower voltage integrated circuits eliminates the need for a high voltage transformer and capacitor. Among other advantages, this enables the possibility of a microwave oven that can be repaired simply and safely.



### User Friendly Repairing.

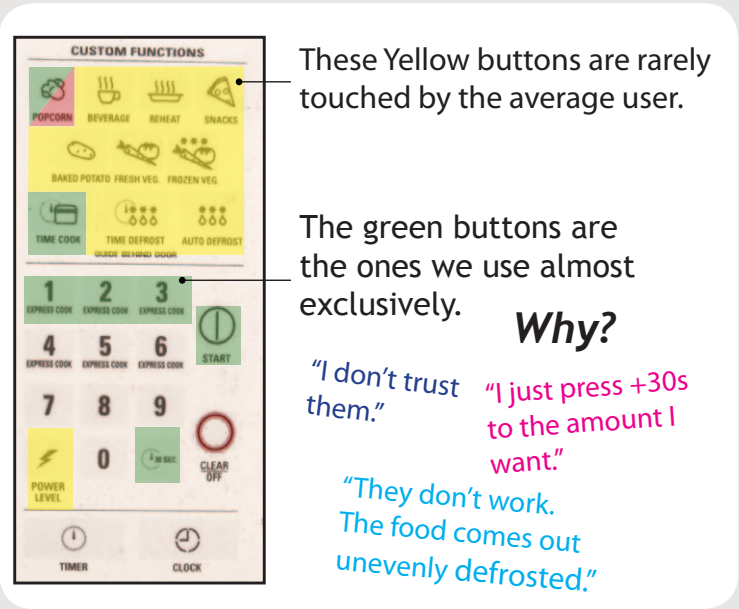
Using the touchscreen interface, Jenny is able to fix her broken microwave in steps as easy as clearing a paper jam from a photocopier.

## Emotionally Durable Upgrades



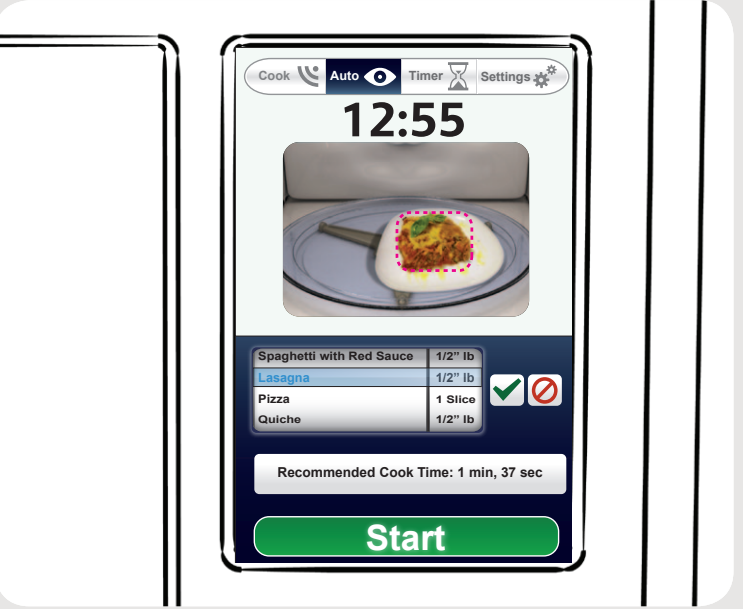
### Making Old Better than New

There is little point in designing physical durability into consumer products if consumers lack the desire to keep them. Enabling updates allows the user’s experience to evolve over time, extending the product’s service life.



### Current State: Buttons To Nowhere

Most users don’t know how to use the extra features and instead stick to their routine of setting low times, watching the food, stopping and touching, and then repeating the process.



### Update #1: Know The User

Utilizing a camera and a recognition algorithm, the microwave is able to identify food type and quantity. It learns how you prefer things heated and then compares it to an online database of how others cook to give you suggestions.



### Update #2: Understand the User

We don’t care about the time the food cooks. We care about its temperature. A thermal imaging system senses the temperature of the food (and then uses a focussing system to direct microwave energy where it’s needed.)



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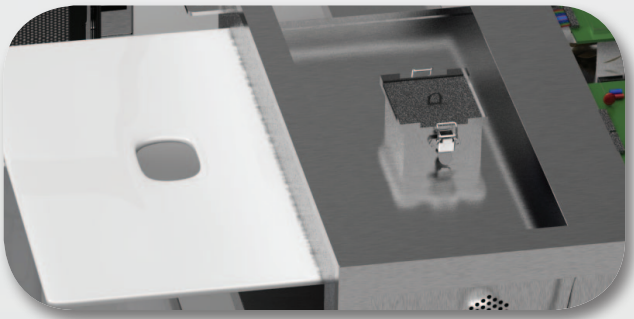
## Exterior Cladding

Using elegant but obvious fastening and simple to fabricate sections allows 3rd party manufacturers to make easy to install custom matching skins for seamless interior design.



## Update Ready

Built into the design are slots ready for updates not yet on the market.



## Ceramic Lining

These panels easily slide in and out, letting the user keep the interior clean for as long as they own the unit.



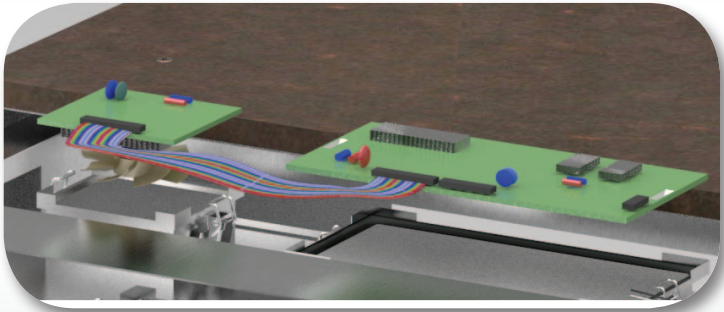
## Crumb & Turn Table Motor Tray

Shunts crumbs that work their way down into a tray that also holds the replaceable turn table motor.

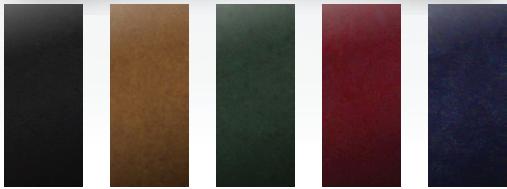


## Easy to Install Components

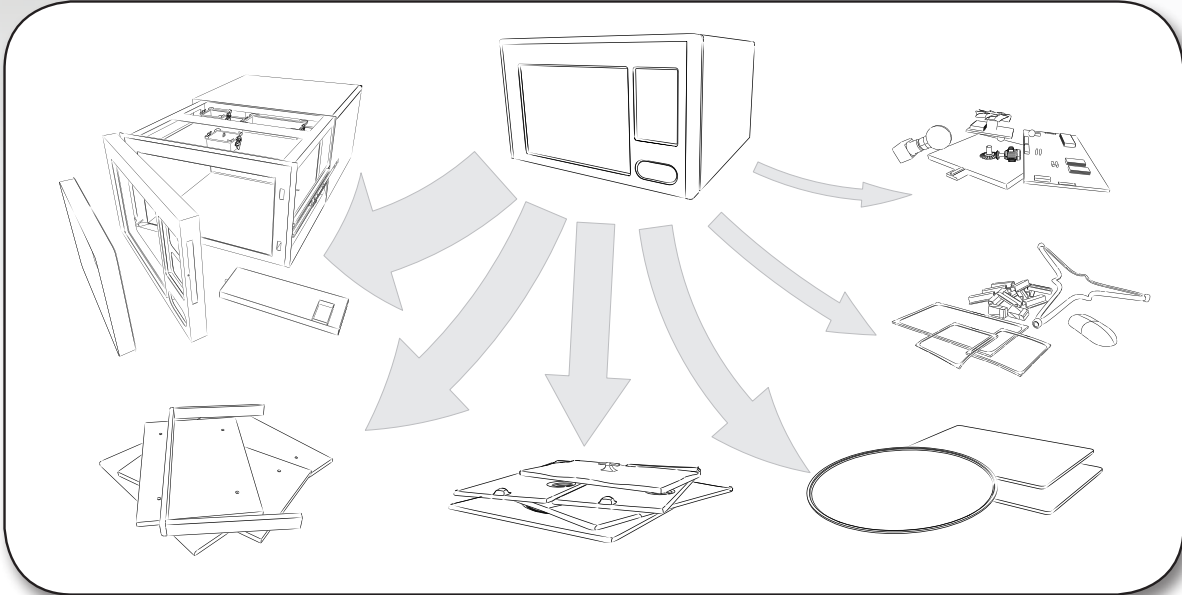
Simply plug in the ribbon and fasten to frame with over-under clamps.



**PaperStone**  
Sustainable Composite Surfaces



Made from 50 to 100% post-consumer recycled paper and petroleum-free resin, this exterior cladding hones with grace as time goes on.



## End Of Life

The bulk of the unit is spot welded unpainted stainless steel sheet and fasteners, which is designed be recycled with virtually no disassembly. Most of the remaining bulk is Paperstone®, glass, and ceramic, all sustainable materials. The rest is a little plastic, rubber, and the electronics; all which come off with little to no tooling necessary.



## Door Mounted Touchscreen Interface

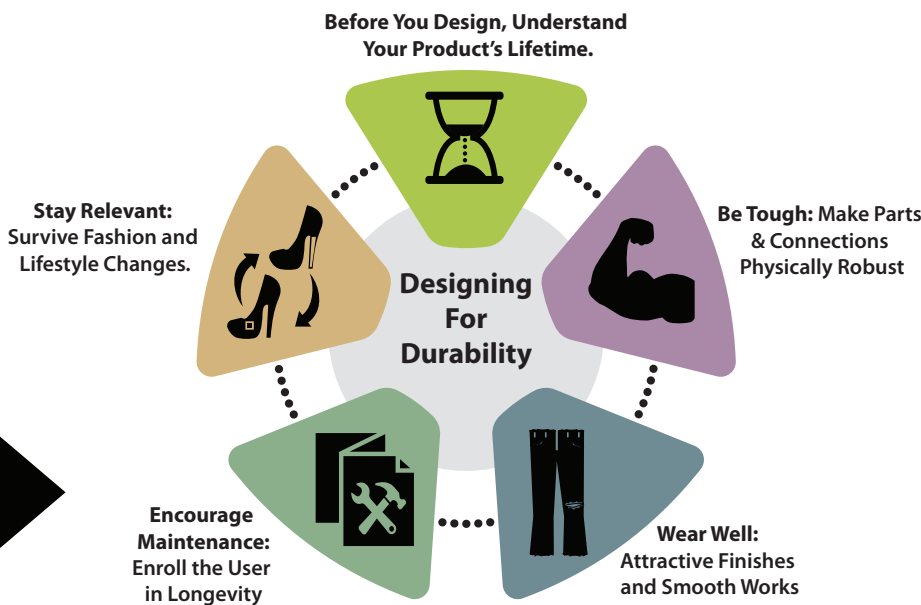
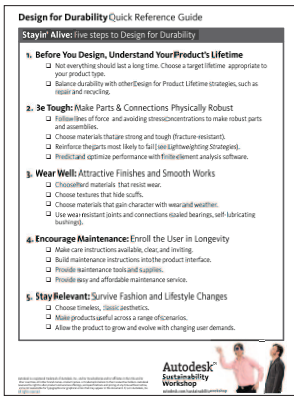
Saves material and counter space.

## Drawer Slide

With a simple push the user can access the service components.



## Design for Durability Key



Author: Marshall Jamshidi