

LCD Monitor - Project Solution Description

Current LCD monitors are designed in such a way that a non-technician would not be comfortable or able enough to open a monitor to replace either the backlight or the LCD display. So many monitors go into disposal or e-recycling because of a broken backlight or LCD display as they are two of the most common problems for an LCD monitor failure [1].

Solution

Our solution makes the LCD repair process so simple than an average consumer will have the power and confidence to easily replace the backlight and screen.

Design Features

- **Component Access:** Release buttons unlock the top of the monitor so that it can be opened safely, smoothly, and without the need of a screw driver.
- **Backlight removal:** The backlight is removed by simply lifting up the old backlight with its attached tabs. Connections are contact-based in the slot, so, unwiring is not required.
- **LCD removal:** The data ribbon to the circuitry is unplugged, 4 securing clips are unlocked and the LCD is lifted up.
- **Closing:** After ensuring the display ribbon is plugged into the socket in the back of the monitor, clips are in lock position and backlights are in place, the front is gently swiveled up towards the back of the monitor and it will snap into place.

Comparison to traditional LCD monitor: A traditional standard Dell 17" LCD monitor took us 30+ minutes to figure out and open the first time with numerous tools. An average user took 12 minutes under guidance and could not manage to put it back together. In contrast, these design changes were implemented by modifying a Sony 20" monitor and it took under 2 minutes to remove the components and put everything back together, and no tools were necessary.

Environmental Benefits: Reduced monitor production will result in decreased emissions of toxic and climate altering compounds such as sulfur hexafluoride, hydrofluorocarbons, and nitric, hydrochloric, and hydrofluoric acids [2]. Avoiding premature disposal of monitors reduces the risk of mercury from fluorescent backlights entering landfills, groundwater, and ecosystems.

References

[1].James Porter. "What Are Some Common LCD Monitor Problems?". eHow.

http://www.ehow.com/info_8193929_common-lcd-monitor-problems.html

[2]Puriry Makandi. "Negative Effects of LCD Monitors". eHow.

http://www.ehow.com/list_7478611_negative-effects-lcd-monitors.html

LCD MONITOR

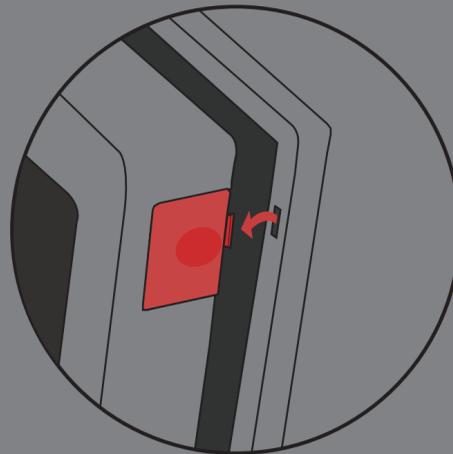
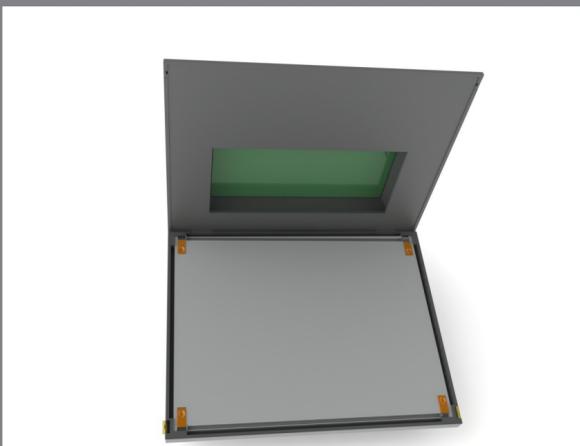
REPLACEABLE BACKLIGHT & LCD WITH FAST & EASY INTERNAL ACCESS

GABE NICASIO • JOHN ZAKRZEWSKI • PRANEETH PULUSANI

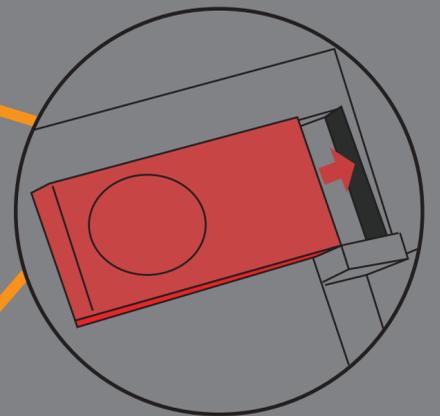
MISSION

Countless monitors go into disposal or e-recycling because of broken backlights and LCD displays. With the reduce, reuse and recycle strategy in mind, we focus on **REDUCTION** by giving the average consumer the **POWER** and **CONFIDENCE** to easily replace the backlight and display components of an LCD monitor.

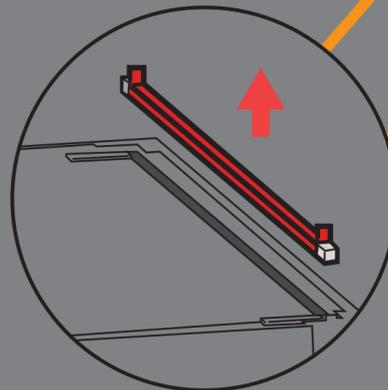
DESIGN STRATEGY



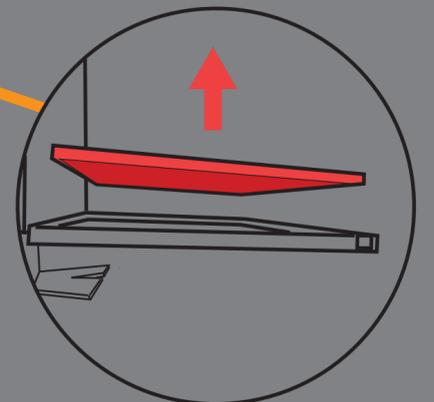
Spring-loaded button allows for the housing to be easily opened without the use of tools.



Four sliding locks are snug-fit into the housing and keep the LCD display and backlights in-place.



Tabs on the backlight make it easy to pull out to put the new one in.



The display can be easily removed and a new one is dropped in.



No tools necessary!

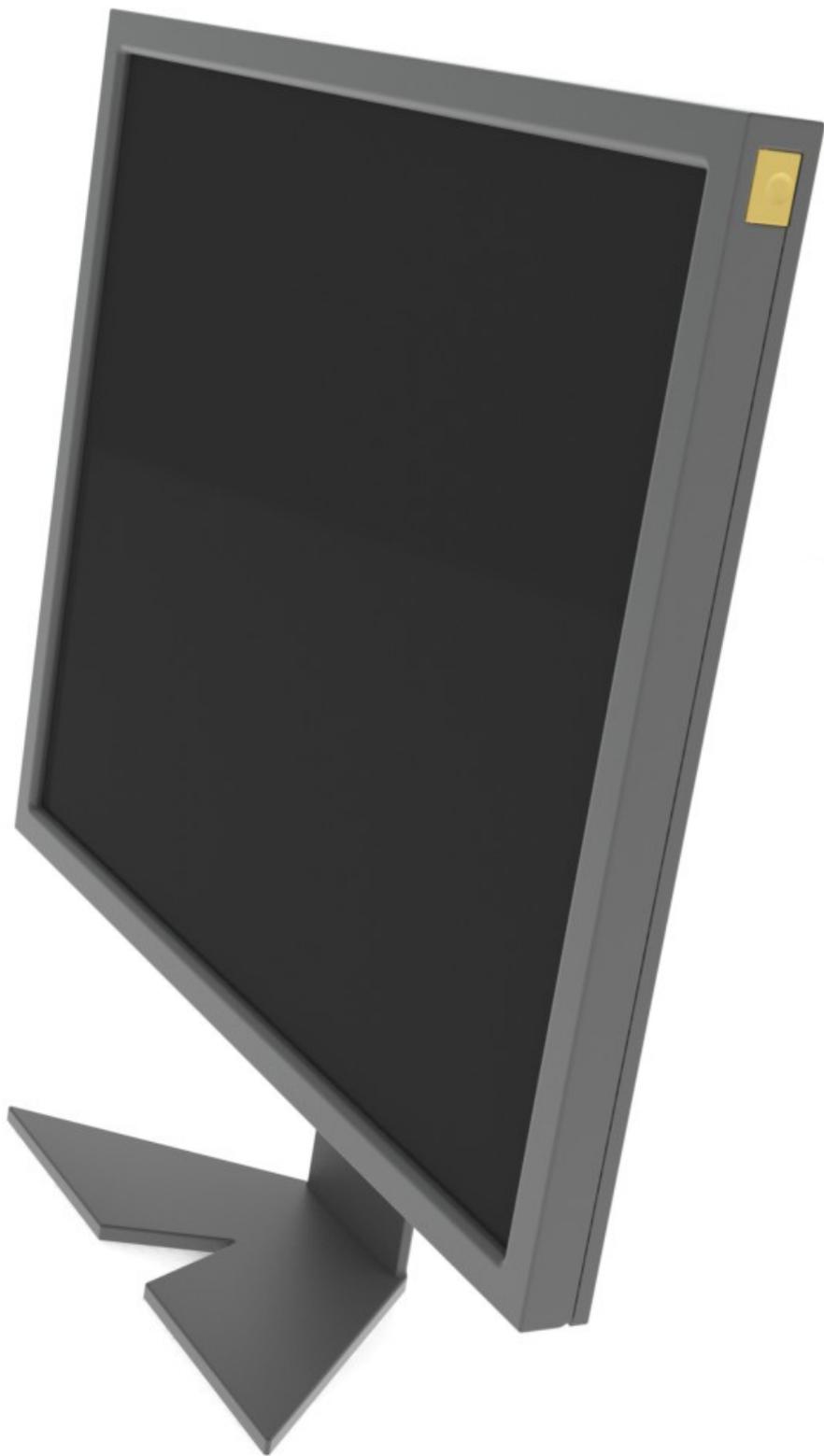
ENVIRONMENTAL BENEFITS

MITIGATES the release of sulfur hexafluoride

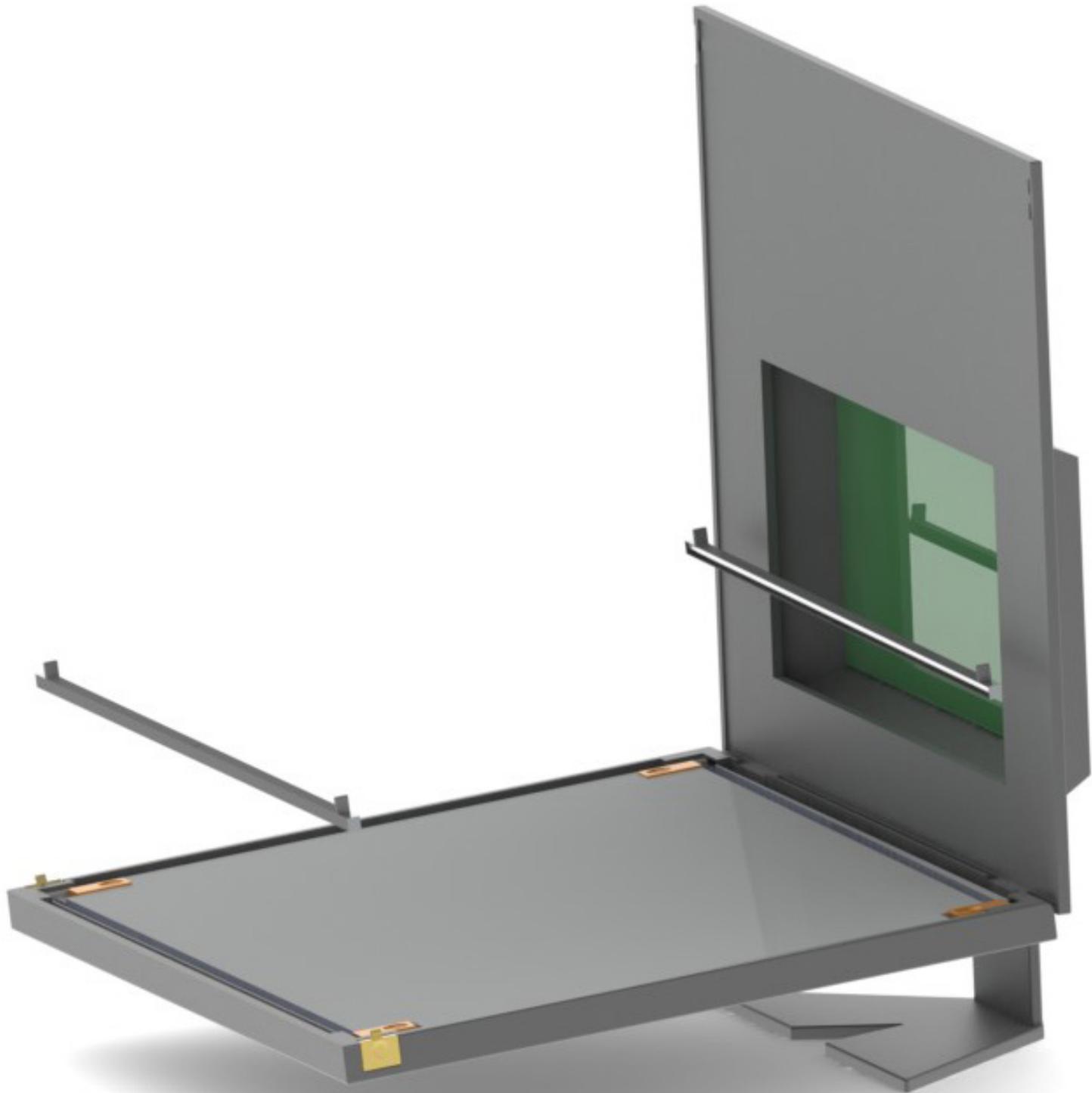
REDUCES the release of hydro-fluorocarbons in the the atmosphere helping reduce ozone depletions

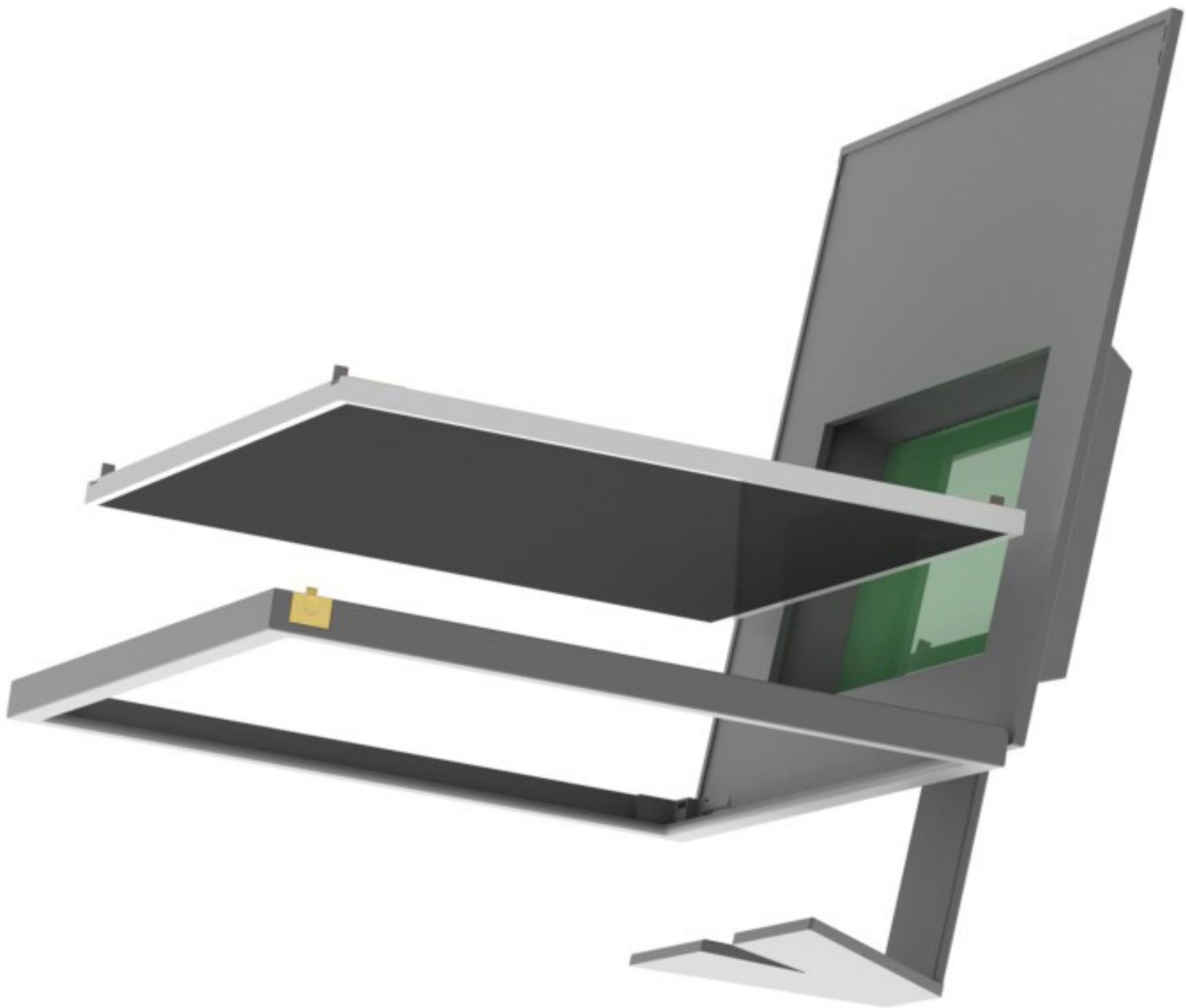
LESS monitors will be placed in landfills

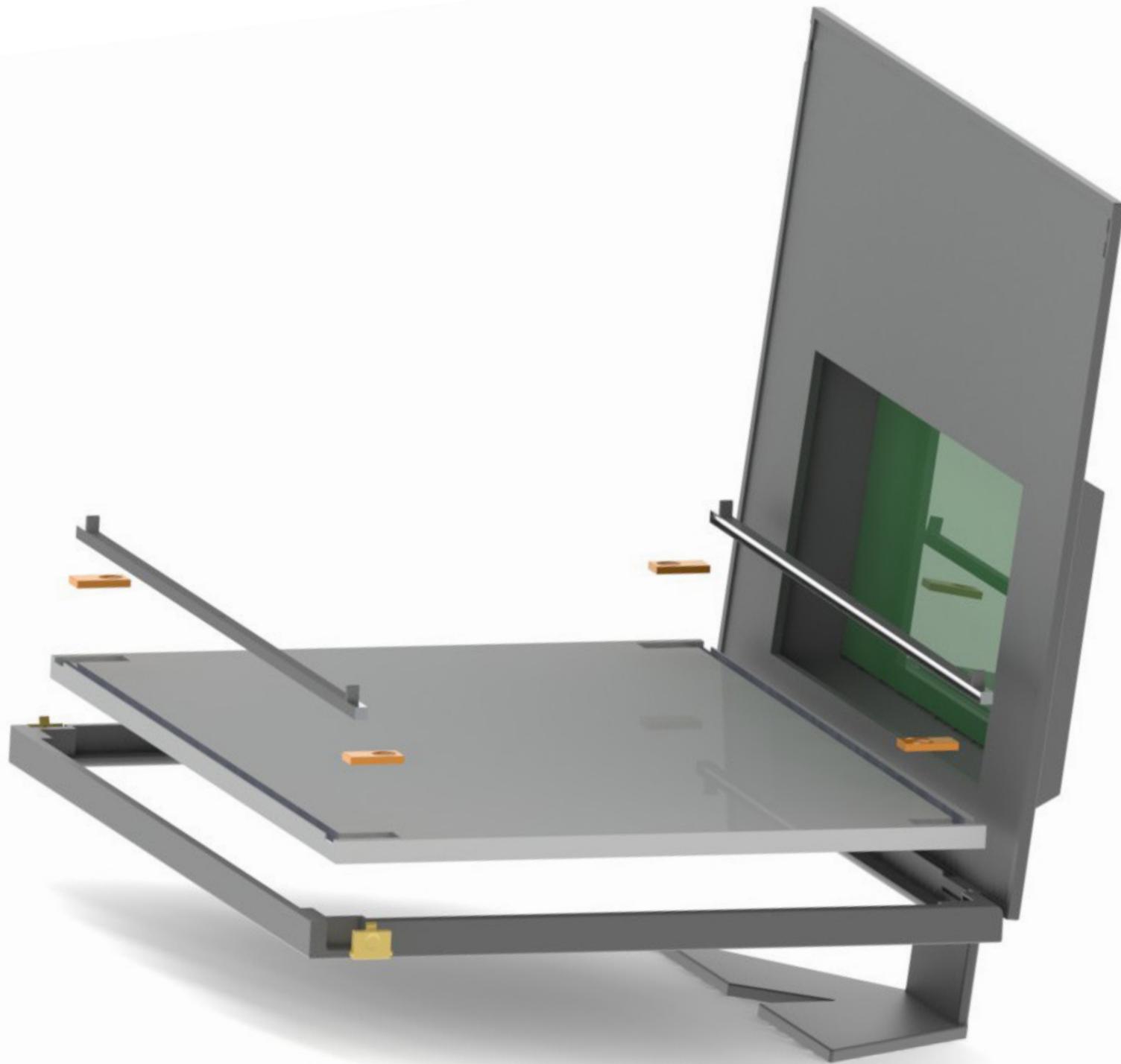
SMALLER damage to the biological ecosystems as fewer toxins leak/release into the environment.











WATCH OUR VIDEO!:

[HTTP://WWW.YOUTUBE.COM/WATCH?V=26XYIOBJYZ8&FEATURE=YOUTU.BE](http://www.youtube.com/watch?v=26XYIOBJYZ8&feature=youtu.be)