

## What this research is about

- More than 2.25 million tons of electronics were retired in 2007 [1]. A large percent of this material waste is in the form of petroleum-based plastic.
- The aim of this research is to decrease the dependence on petroleum based plastic in the electronics industry.

## What the researchers did

- A method to decrease the amount of petroleum content in a plastic is to blend it with a renewable based plastic.
- In this research, we blend petroleum-based acrylonitrile butadiene styrene plastic with renewable corn-based plastic, polylactic acid.
- Acrylonitrile butadiene styrene is a common plastic used in the electronics industry.
- Polylactic acid is a renewable plastic that lacks the required properties for this application. By blending, these properties can be improved



## What the researchers found

- The final properties of the blend must be similar to that of acrylonitrile butadiene styrene, since the target is for replacement.
- The target is to produce a plastic that is more than 50% bio-based. This can be achieved by loading this blended plastic and with an agricultural residue such as soy hull, forming a biocomposite.



### Performance evaluation of used Dell computer case:

Tensile Strength (MPa)	Tensile Modulus (GPa)	Impact Strength (J/m)
48.2	1.79	148.46

## To know more

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## What you need to know

- With a 50% reduction in dependence of petroleum-based plastics in the electronics industry, the world can be closer to living a sustainable lifestyle.
- By creating a composite with soy hull, value is added to the agricultural residue.

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[1] Council, Clean Air, Waste and Recycling Facts. 2010.  
<http://www.cleanair.org/Waste/wasteFacts.html>.