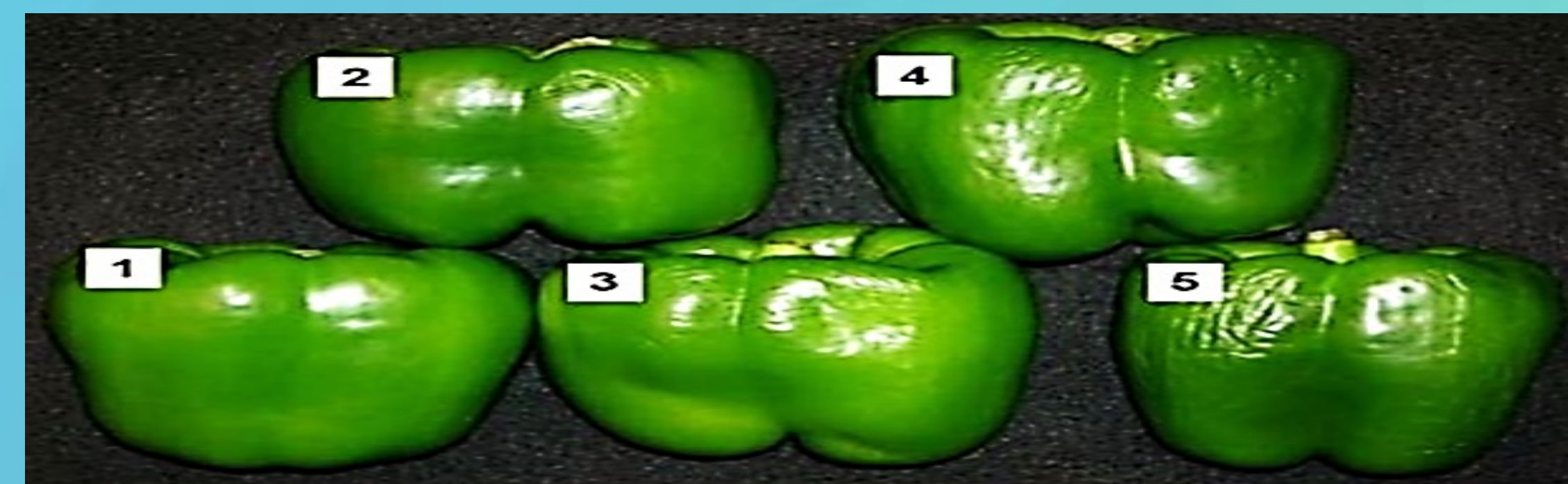


# Fruits and Vegetables Freshness Sensor

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**Background:** There will always be demand for fresh produce and the quality level is always determined by a variety of very expensive tests done by labs and lab technicians usually for international companies and big shopping centres.

This prototype is a method to inspect the produce by reading the current generated between 2 electrical probes through the water content in the produce and that current is a direct indicator of how much moisture it is there.



Effects of water loss, seen as a loss of glossy appearance and shrivel:

Fruit	Water content (%)	Vegetables	Water content (%)
Apple	84	Asparagus	93
Avocado	76	Beans, green	89
Banana, green	76	Broccoli	90
Blueberry	83	Brussels sprouts	85
Cantaloupe	93	Cabbage	92
Cherry	80	Carrot	88
Citrus	89	Cauliflower	92
Grape	82	Lettuce	95
Grapefruit	89	Mushroom	91
Honeydew melon	93	Onion, dry	88
Kiwifruit	82	Pepper, sweet	92
Mango	82	Potato	78
Orange	86	Pumpkin	91
Peach	89	Spinach	93
Pear	83	Squash, summer	94
Plum	87	Squash, winter	85
Watermelon	93	Tomato, firm ripe	94

Table of Water content (%) by weight of some common fruits and vegetables

## Summary of Aims:

- A method to inspect the produce such as fruits and vegetables safely and efficiently and guarantees quality and freshness of the produce.
- Clear simple and fast examination that can be Executed by anyone, an examination that does not require expensive high-tech complicated equipment.
- An inspection device that the end-user can use efficiently, and it show a clear outcome.

## Electronic parts needed:

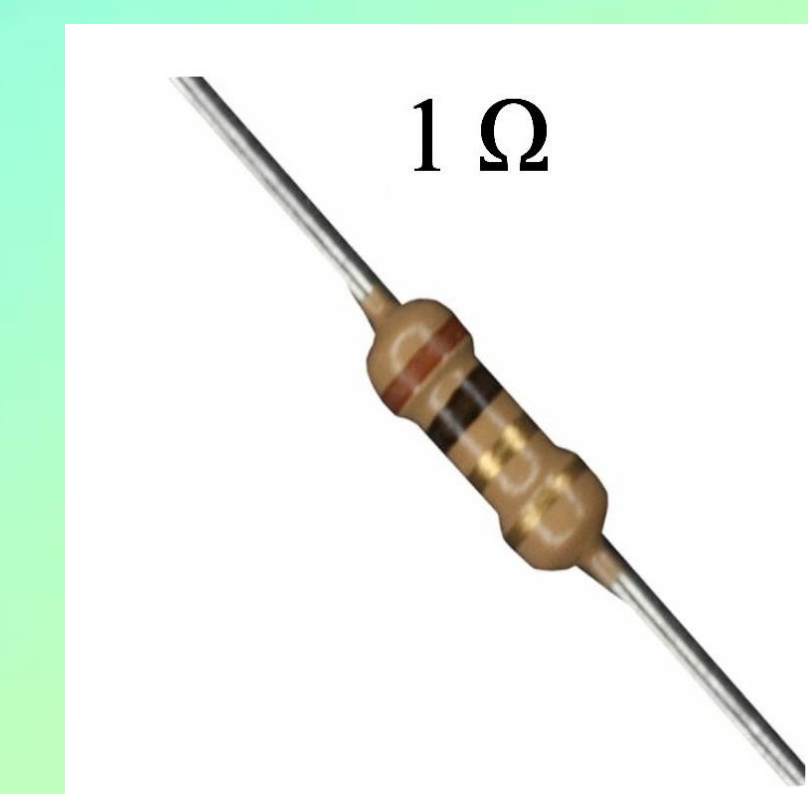


Arduino UNO



## ACS712

Low current sensor Such as ACS712 is a current sensor that can operate on both AC and DC. The output of this current sensor is the same, so to read it, we can directly measure the output voltage using a microcontroller like Arduino through Analog Read pin or Analog to Digital Converter (ADC) pin Which can be helpful if we want to integrate an LCD monitor to the Prototype.

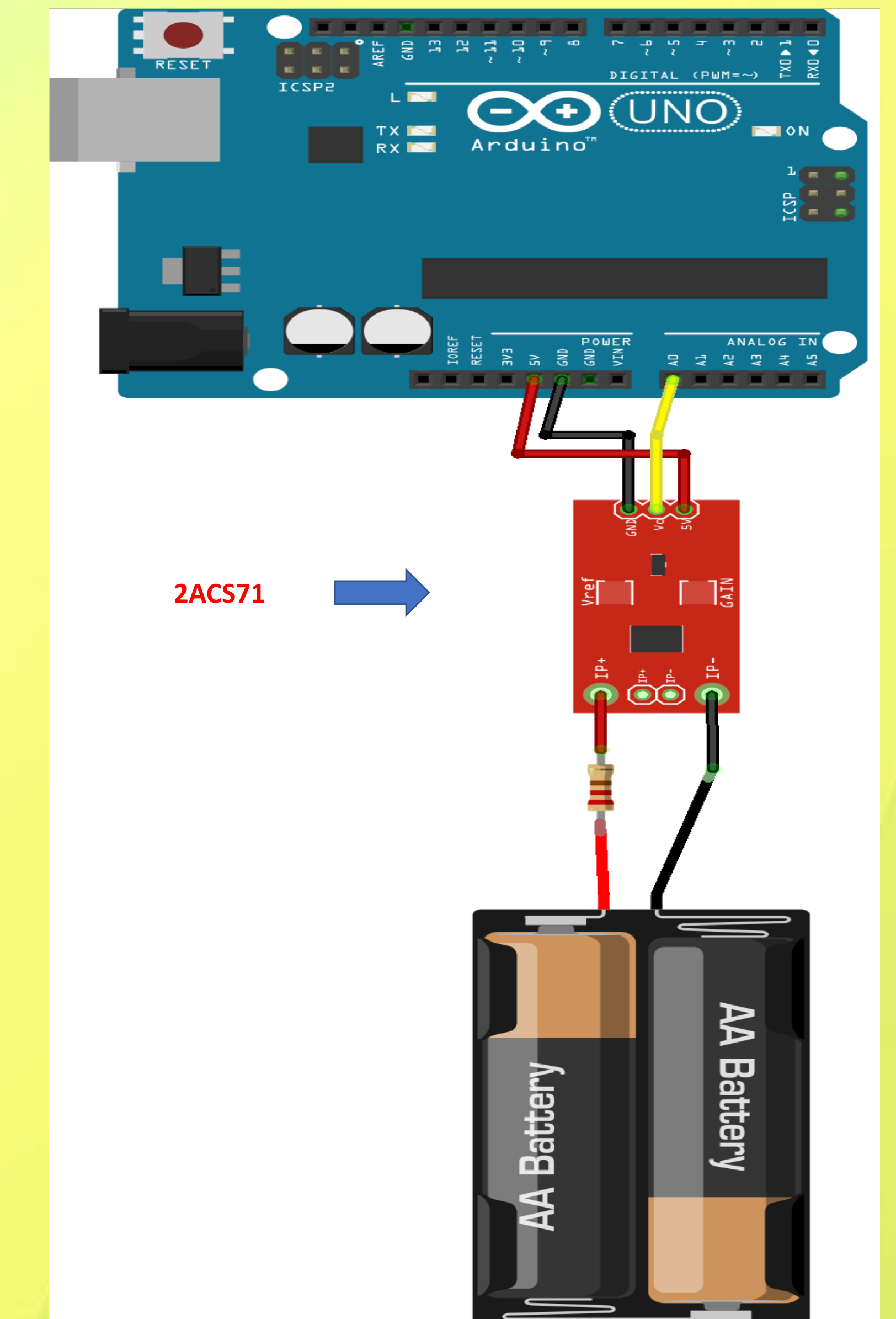
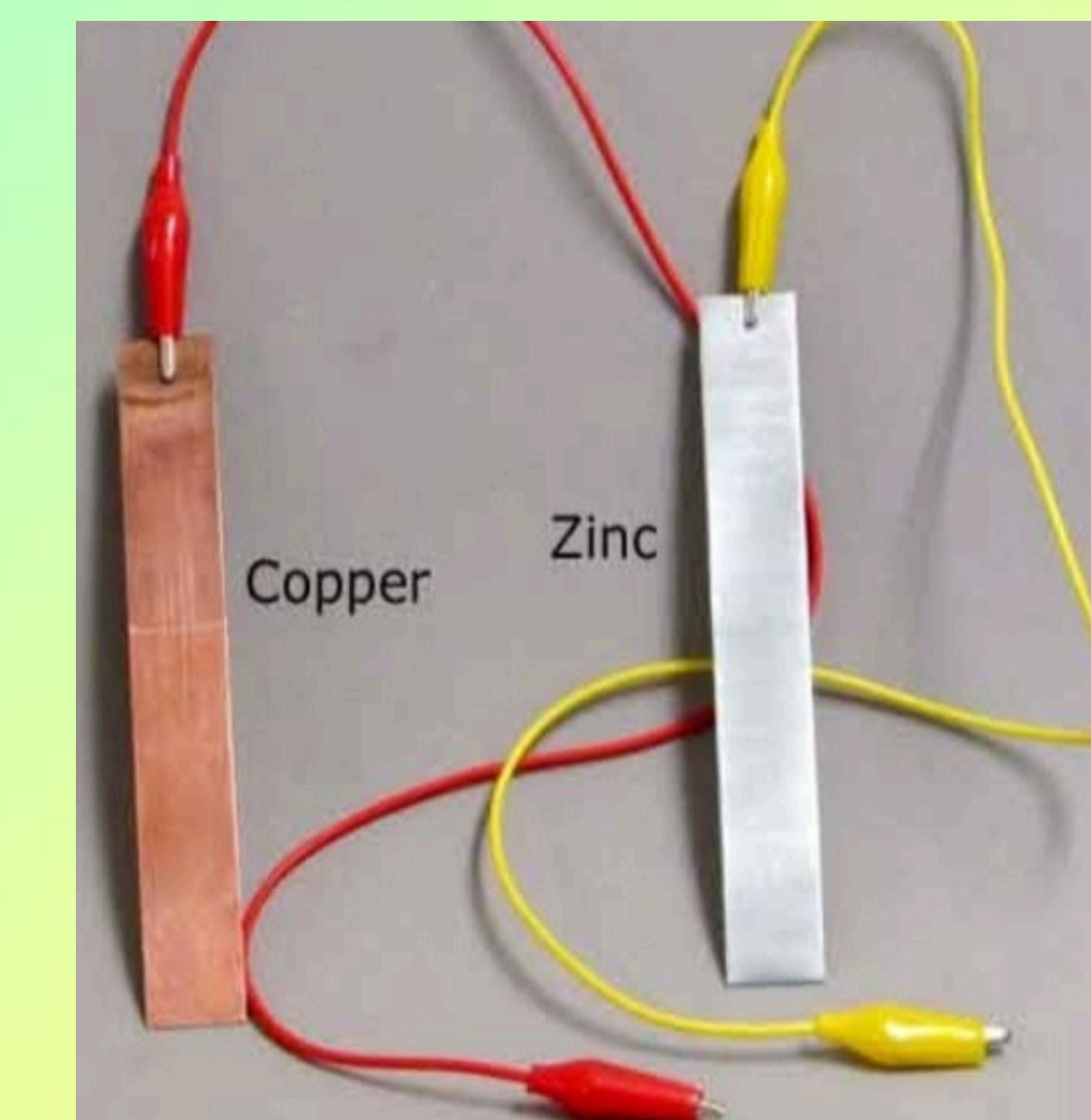


Resistor 1 ohm 8 watt

## Mythology:

By adding a power source and the sensor 2ACS71 The tested produce will conduct electricity due to the moisture contents and the two electrical probes inserted in it. which will indicate at current value that is an Which is a direct result of how much Moisture in the produce and how fresh it is.

## Prototype Assembly:



## Future works:

Hopefully this prototype would be more convenient with the added LCD Screen the indicates the reading without the need of a laptop or smart device, and it is possible to add a HP sensor to the prototype to indicate the acidity of the produce.

## Acknowledgment:

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