TEAM – THE FANTASTIC FOUR

ENERGY SAVING SMART HOMES (USING DETECTION)

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INTRODUCTION

- A smart home is a home system that connects with the appliances to automate specific tasks and can be controlled remotely.

- Smart homes allows us to have greater control of our energy consumption, while automating things like adjusting temperature, turning lights on/off and many more applications.


NEED FOR
INNOVATION

COMPELLING NEED

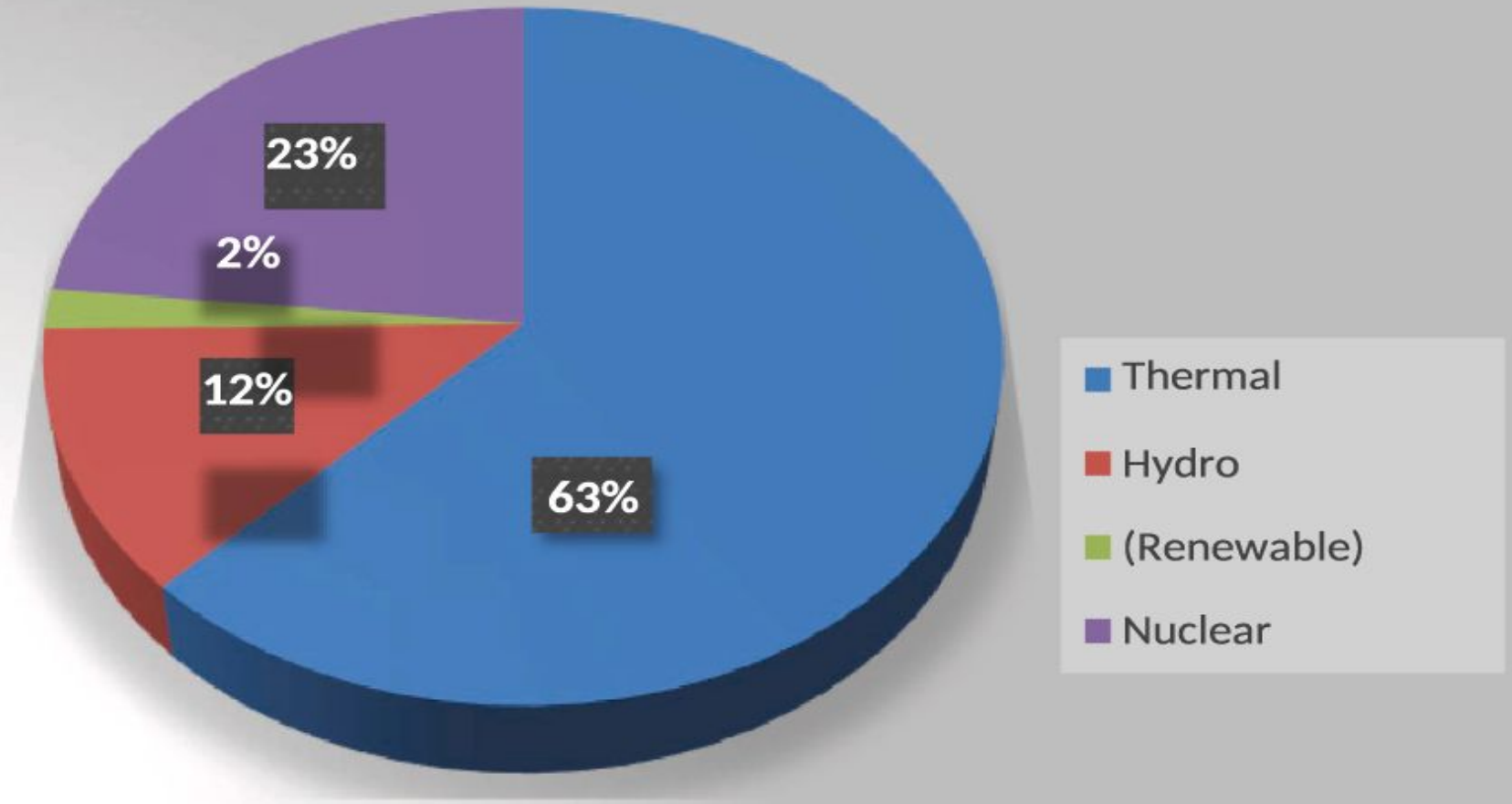
- Considering the daily emerging demand for power and the global climatic conditions there is a heavy requirement of a cleaner source of power before it is too late.

Sources of electricity are likely to deplete

- By minimizing the use of natural energy resources, you are adding an edge to the natural greenery.

PAIN POINT

India's electricity sector is dominated by fossil fuels, in particular coal, which during 2018-19 fiscal year produced about three-quarters of the country's electricity.


23%
2%
12%
63%
Thermal
Hydro
(Renewable)
Nuclear


SOLUTION

Our innovative solution demonstrated here, can be divided into 2 modules :

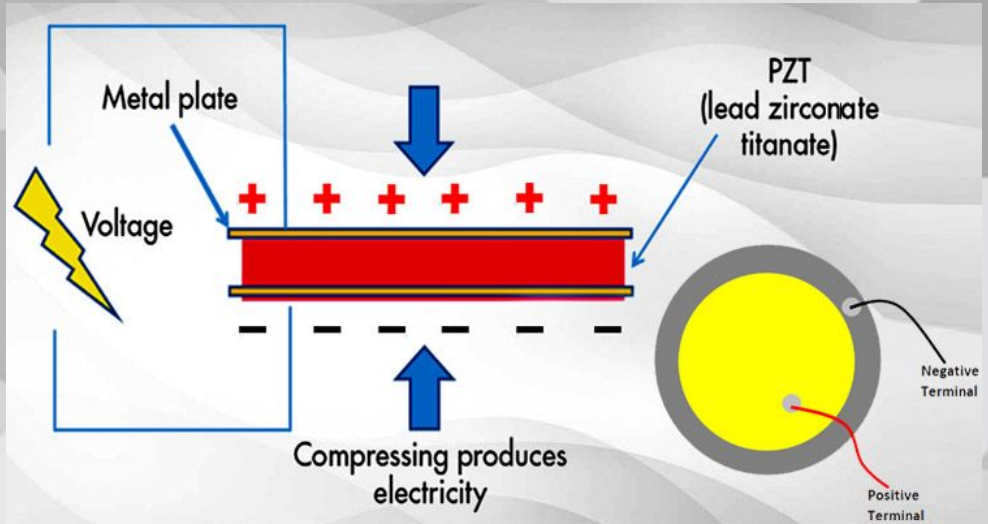
1. POWER SUPPLY - PIEZOELECTRIC GENERATOR (PIEZOELECTRIC TILES)

2. AUTOMATIC ROOM LIGHT AND FAN CONTROLLER

WHAT IS PIEZOELECTRIC EFFECT ?

- Piezoelectric Effect is the ability of certain materials to generate an electric charge in response to applied mechanical stress.

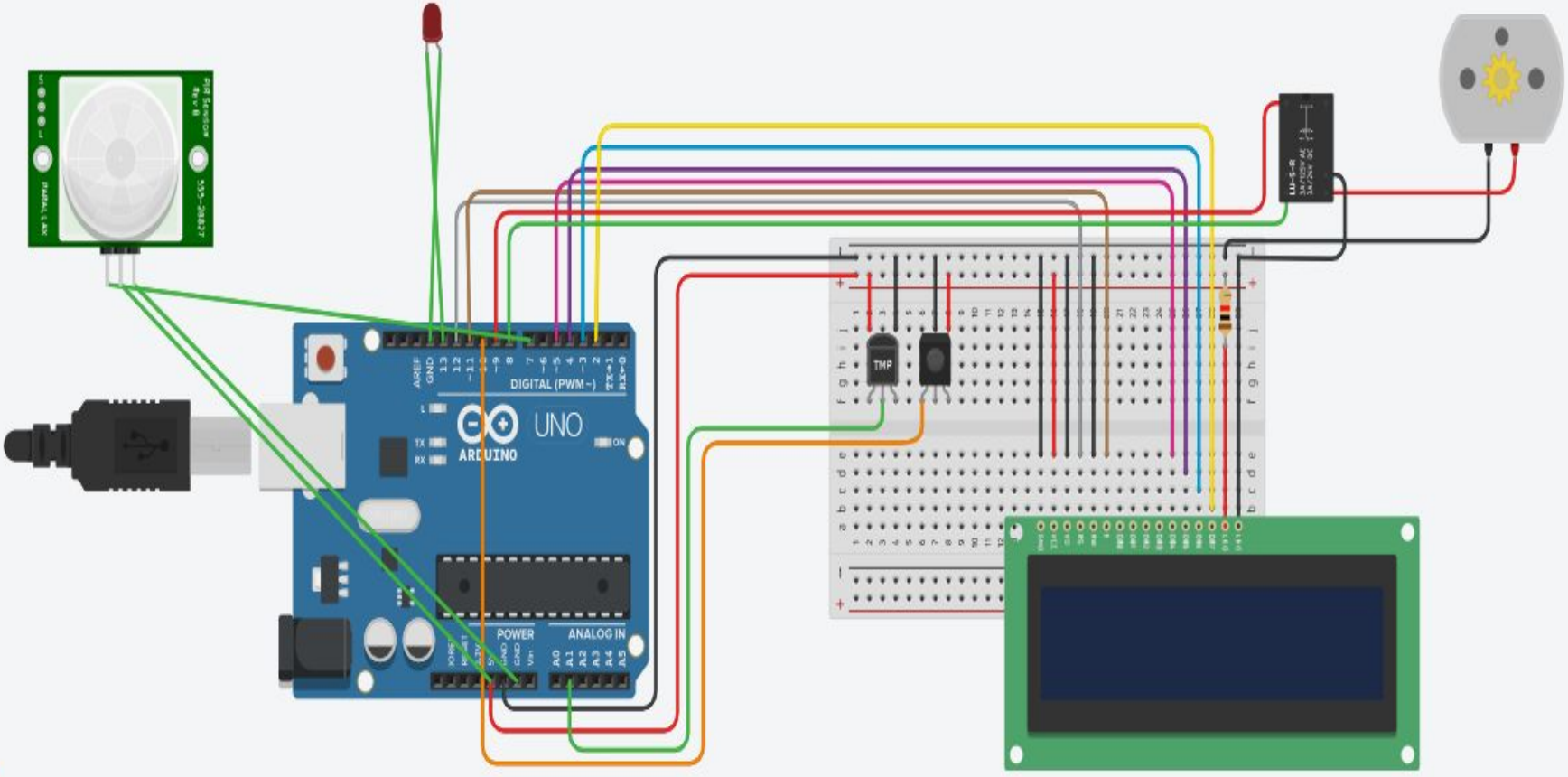
- Some naturally piezoelectric occurring materials include Berlinite (structurally identical to quartz), cane sugar, quartz, Rochelle salt, topaz, tourmaline, and bone



PIEZOELECTRIC TILES

- The piezo-electric tiles will be installed to generate maximum electricity - and will power the battery
- The automatic room light and fan controller is used to turn ON/OFF the respective appliance.When the number of people within the room is zero, the light and fan turns OFF.

CIRCUIT SCHEMATICS

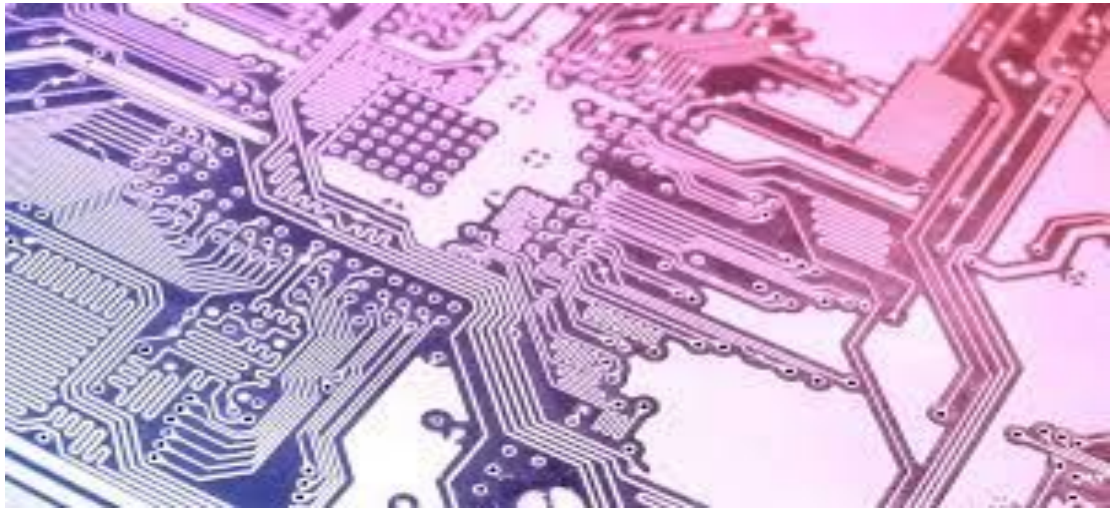


NOVELTY

1	Power capacity of one tube light in watt	40	40
2	Operational hours of corridor tube lights	12	3
3	Total consumption in watts per day	480	120
4	Number of days in a month	30	30
5	Total power used by one tube light in kw	14400W = 14.4 KW	3600W = 3.6 KW
6	Cost of electricity per kw in Rupees	4.5	4.5
7	Amount paid per month @ Rs. 4.50 per unit	64.8	16.2
8	Savings per month per 1 tube light in Rupees.		48.6

The speciality in this project is the idea of saving power upto 25 -30%.

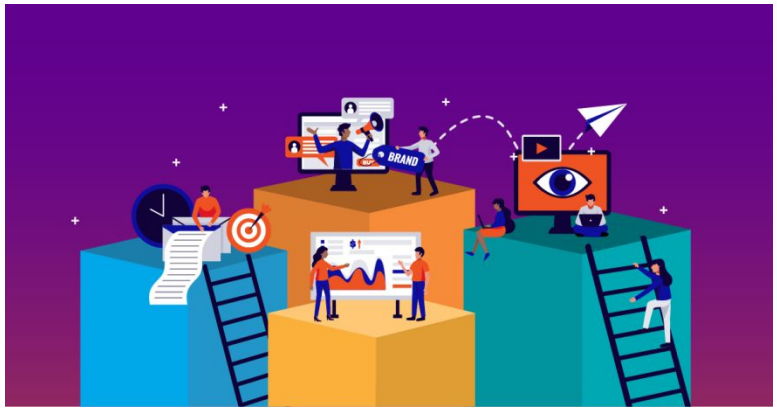
The novelty of our prototype relies in the detection capabilities of the counters and crossing detectors with the application of PIR sensors,there by saving the produced electricity.




MARKETING
STRATEGY

- Printed materials for advertising (viz. pamphlets, handouts, etc.)
- Knowledge transfer through educational institutions and conferences
- Video outreach through programs telecasted via local and national channels (viz. advertisements)

- Open-house festival
- Digital marketing

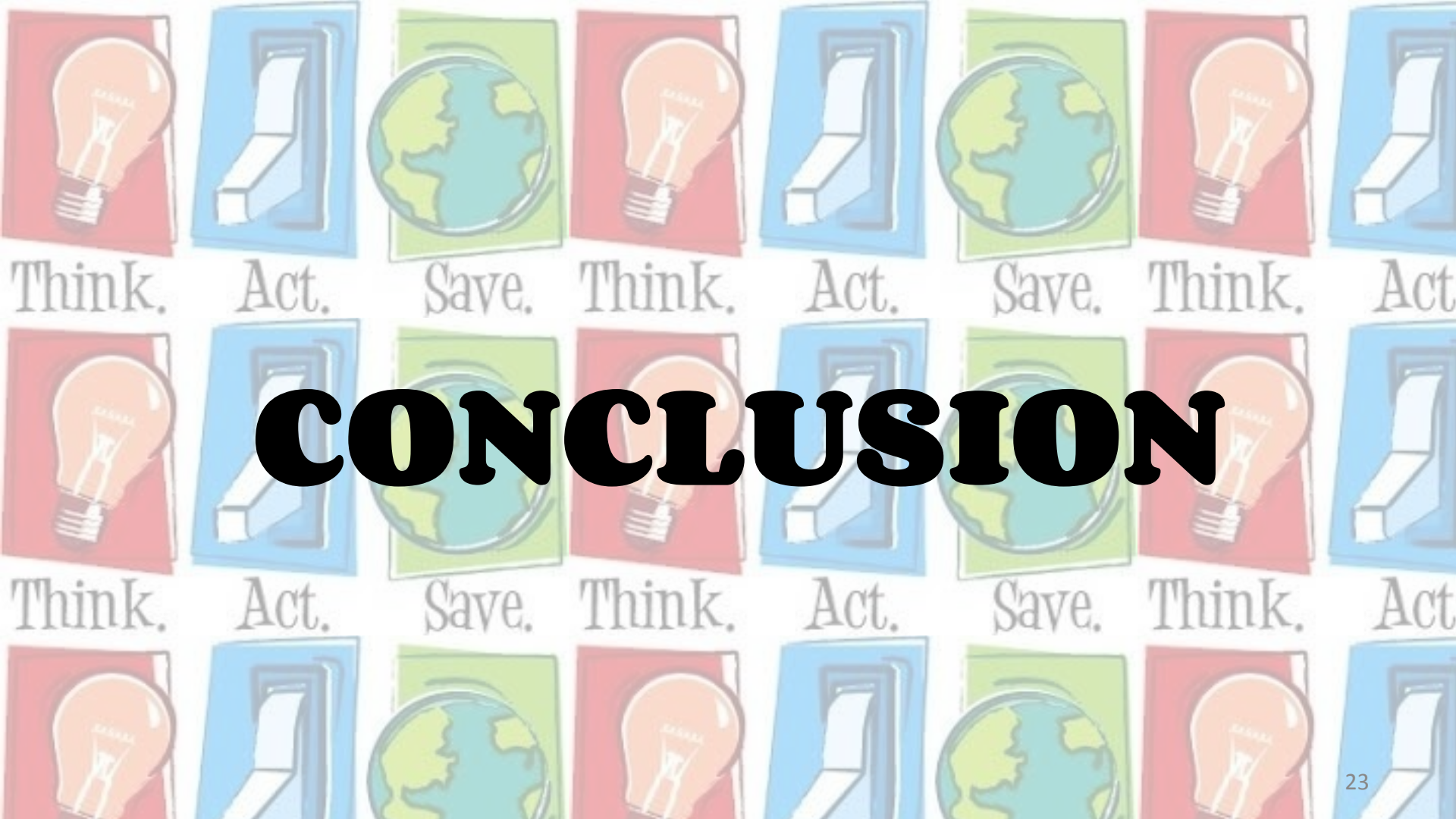


RISK ASSESSMENT

- The power generated due by the piezo tiles is comparatively lower than other renewable sources.
- A stable internet connection is always required for an IoT to run.
- Piezoelectric crystals are temperature sensitive.
- Some crystals are water soluble and dissolve in a high humid environment.

FUTURE ADVANCEMENTS

- An app can be developed for the overall control of the smart home.
- Solar power can also be used as an alternative.
- As a Safety unit a smoke sensor module can be installed.


Think. Act. Save. Think. Act. Save. Think. Act.
Think. Act. Save. Think. Act. Save. Think. Act.

CONCLUSION

Our manifestation of piezo electricity concept involves the use of mechanical stress. But the implementation of our prototype will remove the user's stress for paying electricity bill.


Thank
You