

Donate  Electricity



Problem Statement



Alleviating the HOSPITALS from load shedding in a country (Pakistan), where even backup generator stays idle for several days due to lack of fuel in public hospitals.

Motivation

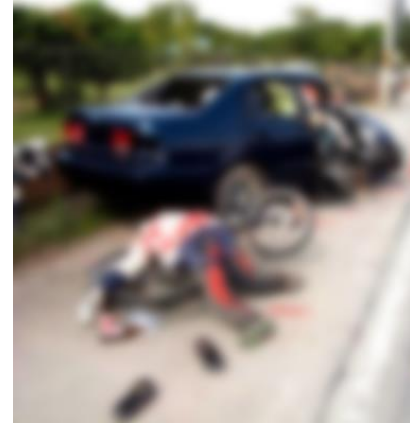
- ❖ Continuous power supply to hospitals is **critical** for the operation of **life support** machines such as respirators, incubators and ventilators in labor rooms/ICUs/Dialysis centres/CCUs.
- ❖ Due to an average electricity supply demand gap of **7000 MW**, hospitals in Pakistan experience daily outages in summers which can be as long as **8 hours**.
- ❖ This leads to a large **number of deaths** across the whole country every **year**.



We plan to **save** lives by donating electricity!

Supporting Information


(Real Life Example)



Ali Raza

16 year old boy (Sialkot, Pakistan)

Ali met an accident and got severely injured. He was taken to the nearby hospital but the staff couldn't treat him instantly due to load-shedding. He was then taken to three other hospitals, one after the other, but couldn't get proper medical care because of the very same reason. Unfortunately he couldn't survive.



Why the topic is chosen out of all problems in Pakistan?

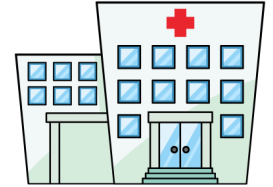
Life is God's most precious gift, no principle, however glorious, may justify the taking of it.
~Arthur Miller

- ❖ Almost **30 major surgeries** get delayed at *Jinnah Hospital* daily because of **load shedding**.
- ❖ Doctors of *Lady Willingdon* and *Mayo Hospital* also complain about **deaths** due to **electricity outages**.
- ❖ At *Punjab Dental Hospital*, **hundreds are denied** treatment due to load shedding.
- ❖ Doctors treat **critical patients on the road** under the solar-powered street lights in *Karak*.
- ❖ **11 children died** as vaccine lost its efficacy due to no cold storage at *Jinnah Hospital*.
- ❖ Sometimes there is no electricity even for the **ICU** and **labour rooms**.

Proposed Solution



Donate Electricity



Save electricity in homes using intelligent energy management mechanisms based on occupancy detection and environmental conditions (temperature, humidity etc.) by using energy-efficient appliances.

Donate the saved electricity (units) to nearby hospitals.

Several homes saving electricity together can keep the nearby hospitals lit even during periods of load-shedding.



How will it solve the problem?

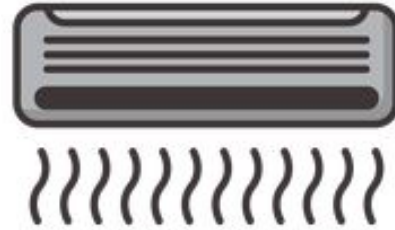


- Through our proposed solution, load shedding will not be considered as a destiny of hospitals as they can be energized by the energy saved and donated to them by homes.
- Homes at the same time will not see a degradation in the normal living style as the energy savings will be done by cutting down unnecessary usage of electrical appliances.

Impact

Through temperature sensors peak utilization of AC can be reduced

One bedroom AC uses **571W** at peak use and **280W** at average use



Temperature changes from **16 Degree Celsius** -> **26 Degree Celsius** via sensor



A normal refrigerator uses **476W** at peak use and **74W** at average use

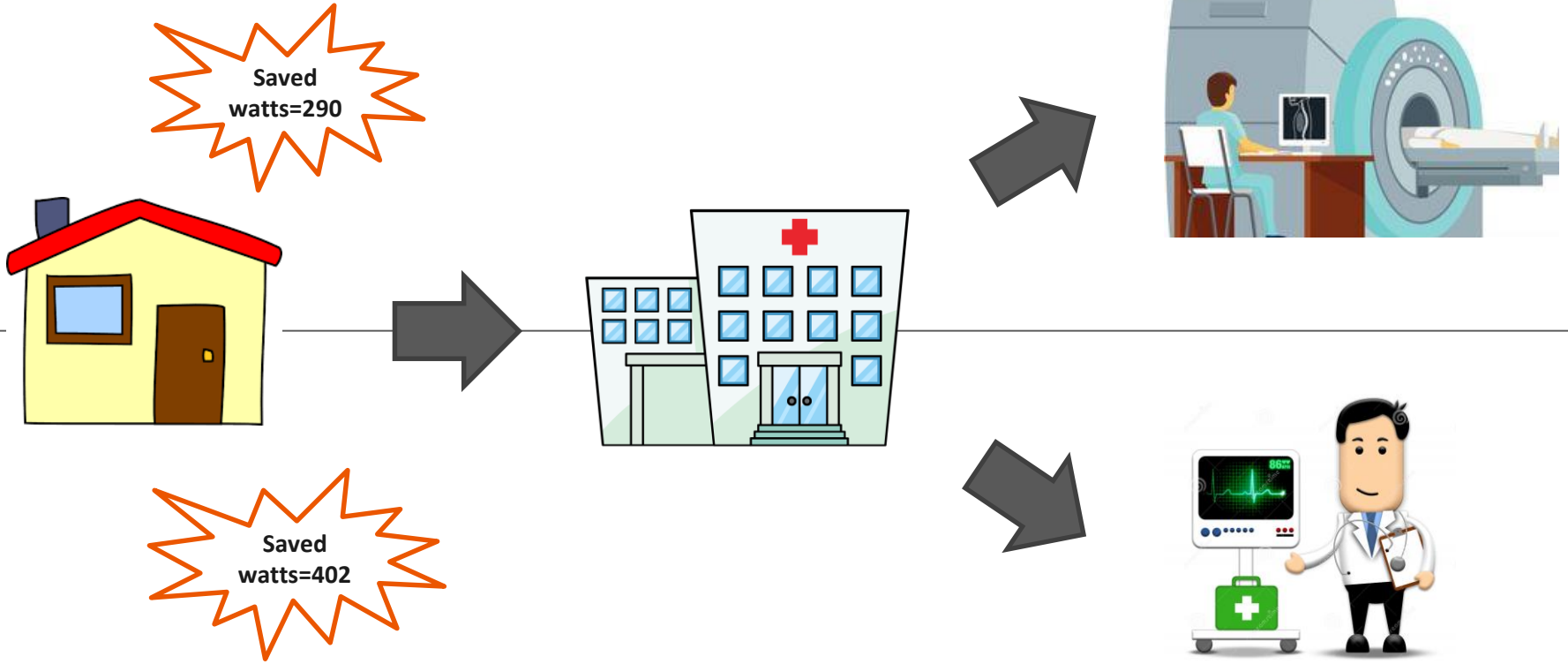


Temperature changes from **Coollest** -> **Moderate** via sensor



Impact Cont..

Saved energy units donated to hospitals





Team Members

- 1- Saba Rasheed Malik, **Assistant Professor**, NUCES-FAST
- 2- Hareem-e-Sahar, **Lecturer**, Riphah University
- 3- Rafia Rahim, **Lecturer**, NUCES-FAST
- 4- Ifrah Qaisar, **MS(Software Engineering) Student**, NUCES-FAST
- 5- Wajiha Hameed, **Senior Quality Assurance Engineer**, Techlogix (Pvt.) Ltd