Mortised Solar Tracker for Gurukul

- A student of class 11 (Year 12) at The British School, New Delhi
- Studying IBDP curriculum in year 12 and 13
- Studying Maths, Physics and Economics as HL (higher level) subjects
- Support Manav Mandir, NGO for setting up the Solar Tracker. Contribute Today!!

A STEM Innovation Community Development Initiative by Arnav Gupta

Project

Conservation of energy is important in order to create a sustainable environment for the future. The purpose of my project is to optimize electricity generation in an environmental friendly and sustainable manner. My ‘Motorised Solar Tracker’ will enhance the efficiency of the solar panel by harnessing the sun’s energy to generate electricity (convert light energy to electrical energy).

This electricity generated will be used to power appliances like LED lights and fans for classroom set-ups in rural communities. This project will also promote STEM education amongst students and teach them how to generate clean and renewable energy in an effective manner.

How does a ‘Motorised Solar Tracker’ work?

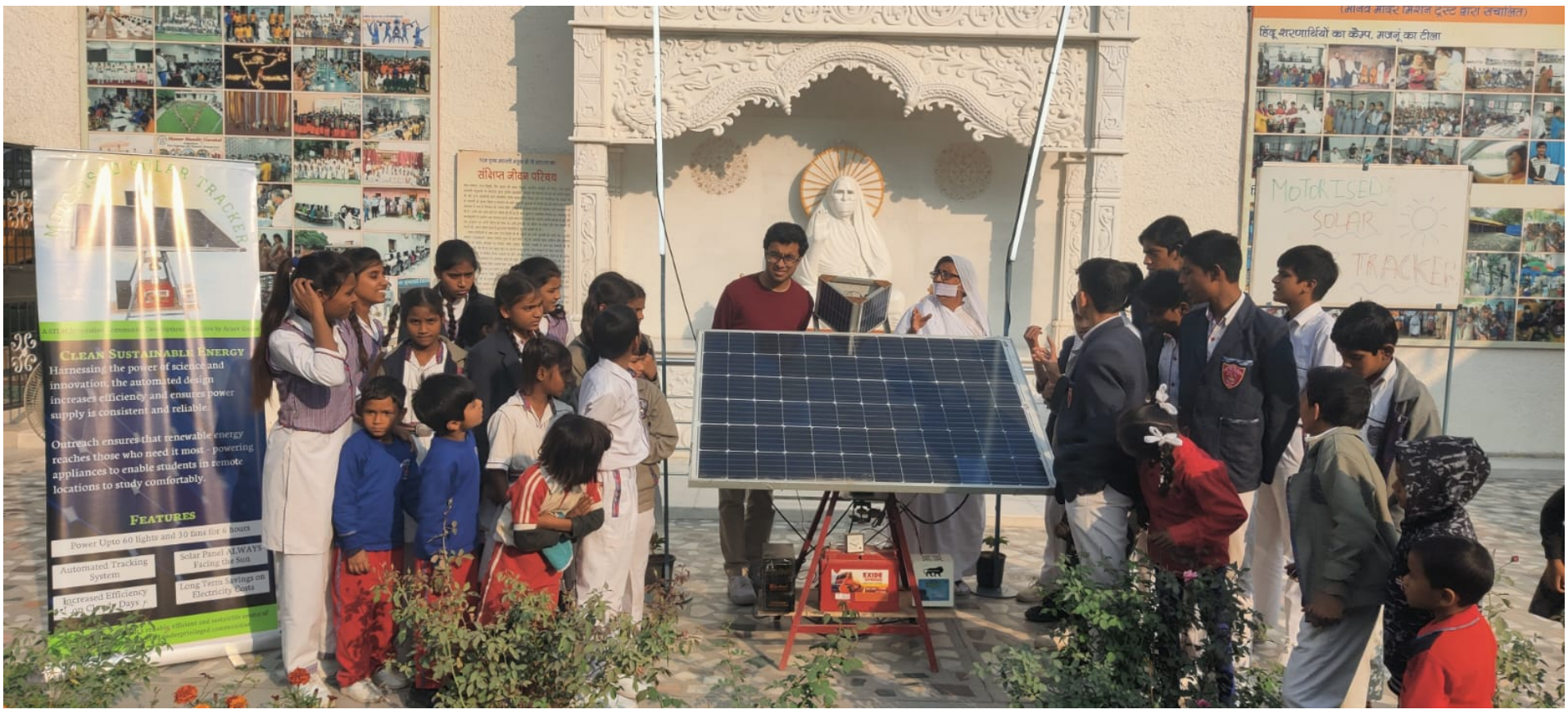
In most installations, the solar panels are fixed and pointing in a southwardly direction. This approach is not effective as the sun is constantly changing altitude and direction throughout the day. Without a rotating solar panel, many additional solar panels are required to generate the same amount of electricity, thus increasing its cost and lowering its efficiency.

With the ‘Motorised Solar Tracker’ that I have designed, the tracker will rotate the solar panel throughout the day and track the sun’s movement from east to west. In doing so, we will optimize the efficiency of the solar panel and in-turn generates clean and renewable energy.

The MOTORISED SOLAR TRACKER is essentially a sun location sensor that rotates a DC motor, which in turn rotates the solar panel so that it directly faces the sun.

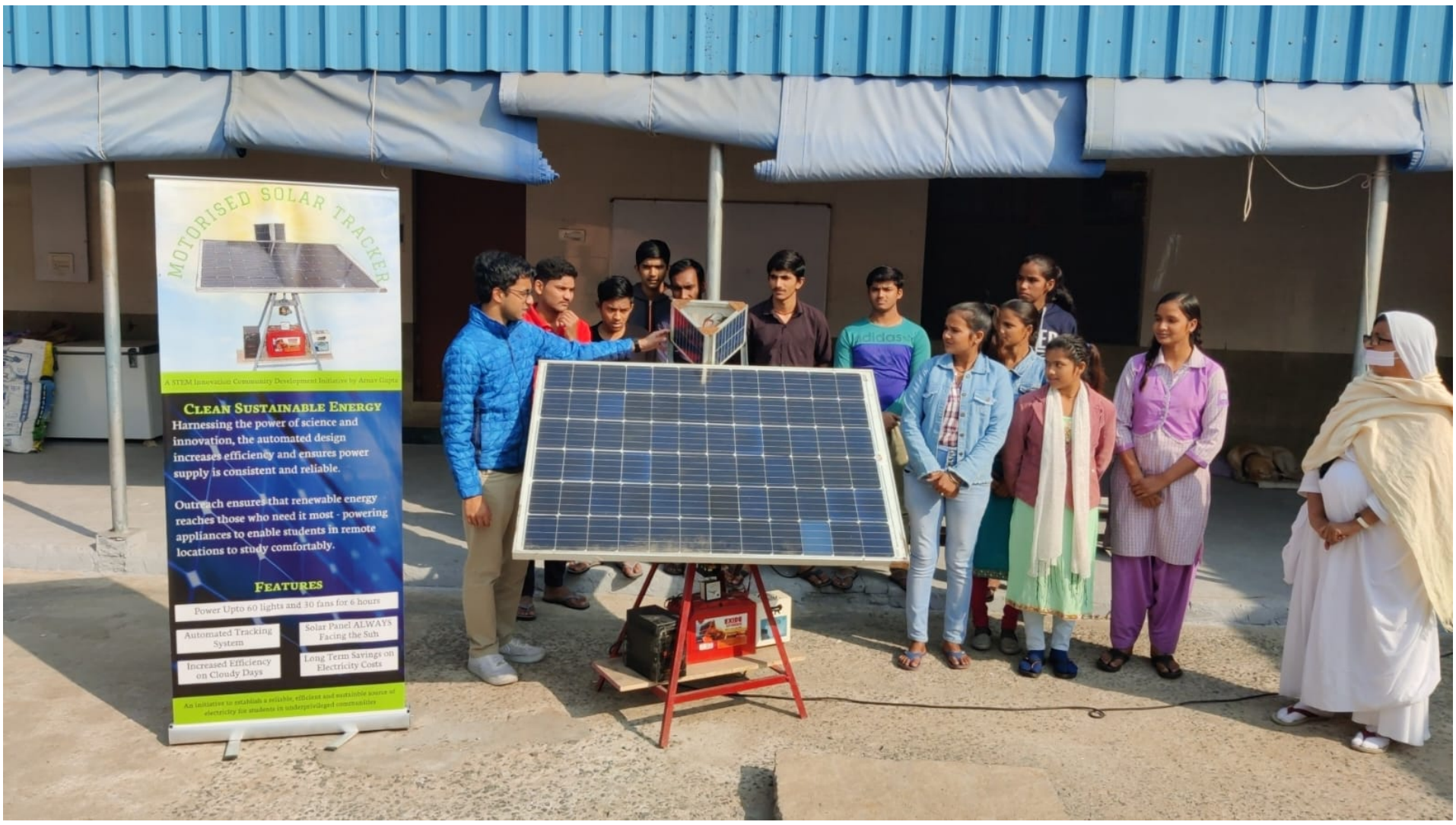
There are TWO COMPONENTS to the ‘Motorised Solar Tracker’

1. Sun Location Sensor & Rotating Mechanism
2. Electrical Circuit & its Components



Features of this project

- Automated Tracking System
- Solar Panel directly the Sun
- Increased Efficiency even on cloudy days
- Long term savings on electricity costs
- A fully charged battery can power upto 60 LED lights and 30 fans for 6 hours under optimal conditions



Conclusion

I have combined my interest in sciences and economics through this STEM based project. This clean and renewable solar energy generated can be used in our homes, offices and schools. My project 'Motorised Solar Tracker' is also an initiative to help other children develop an interest in STEM education through research activities.

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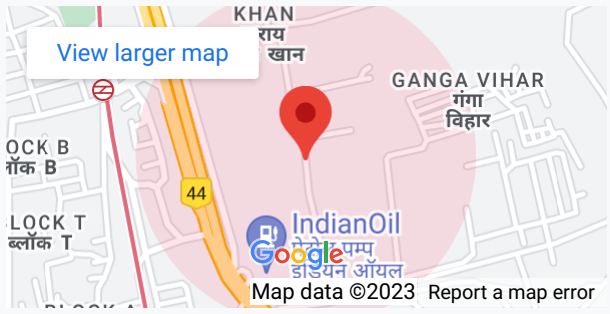

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