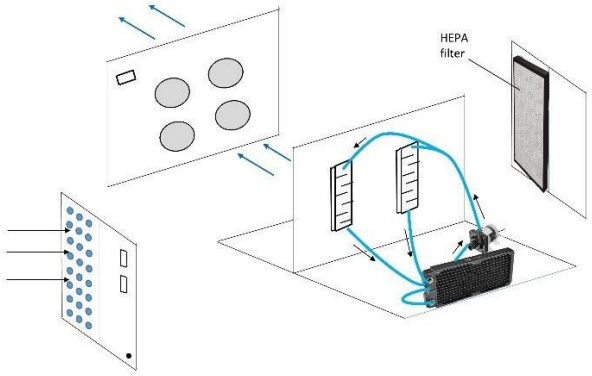
SRPG 2020-21– FINAL REPORT

1	Name and Address of the Parent Chapter with Student Chair	ISHRAE Kolkata Chapter 5/1/2K Cornfield Road, Kolkata – 700019 Student Chair: Mr. Arka Mazumder
2	Project Guide Name and Contact Details	**Dr. Suday Kumar Ghosh**, Address- Dept. of Mechanical Engineering Techno Main, Salt Lake, Kolkata Mobile:9433244227, 8777348750(WA) Email: sudayghosh@gmail.com
3	Title of the Project approved	**IoT based Peltier Air Conditioner**
4	Ref No SRPG	SRPG_UG_41
5	Team lead Name and Contact Details	**Debarghya Basu** Mob.: 8013586905 E-mail: debarghya.basu98@gmail.com ISHRAE membership number – S00064082
6	Amount Sanctioned (Rs)	Rs 14,079.00(Rupees Fourteen Thousand Seventy Nine Only)
7	Approved objectives of the Project	• Provide both cooling and heating without any refrigerant or pressure equipment. • Low cost, portable device. • Dust free and germ free air. • IoT controlled on off switch. • Low power consumption.
8	Working	 Exploded view of IoT based Peltier air conditioner

9	Summary of the Progress	• Assembled all the parts. • Completed the test run. • Observed the different parameters.
10	Work done so far	• Connected all the wires, secured them with tape, connected the smps and it is working fine. • Connected the NodeMCU to make it iot enabled. • Properly connected all the water cooling system parts. • Attached the filter and uv lights. • Finally assembled all the parts • Did a test run for straight 5 hours and the results is satisfactory. • Measured the observation results and noted them.

11	Photographs of items bought and the system developed	 

12	Future improvements	• Developing a energy harvesting mechanism and connecting to the device. • Making an app to control the air conditioner from anywhere.
13	Observations	• Weight = 2.5 kg • Approximate cost = Rs 12500 • Input power = 360 watt • Reached cooling temperature of 15^{o}C within 10 minutes at 2 feet distance. • Can be changed from cooling mode to heating mode with one switch and heating temperature reached 35^{o}C • Can be controlled from distance using blynk app. • COP = 2.2 • EER = 7.6

14	Signature of the Project Guide	Sanjay Kumar Ghosh
15	Signatures of the Project Team Member with date	Debarghya Basu 21.7.2021