



SINHGAD TECHNICAL EDUCATION SOCIETY'S
SINHGAD INSTITUTE OF TECHNOLOGY

Sinhgad Institutes

(Affiliated to Savitribai Phule Pune University, Pune & Approved by AICTE)

Gat No. 309/310, off Mumbai Pune Expressway Kusgaon (Bk), Lonavala Pune -410401
website: sit.sinhgad.edu

7.1.2: The Institution has facilities for alternate sources of energy and energy conservation measures

Sinhgad Institute of Technology takes initiative for green environment. Encouraging use of alternative energy sources for positive impact on environment is also a step in that direction. The energy usage the campus is boosting the people to use non-polluting sources to improve energy efficiency

INDEX

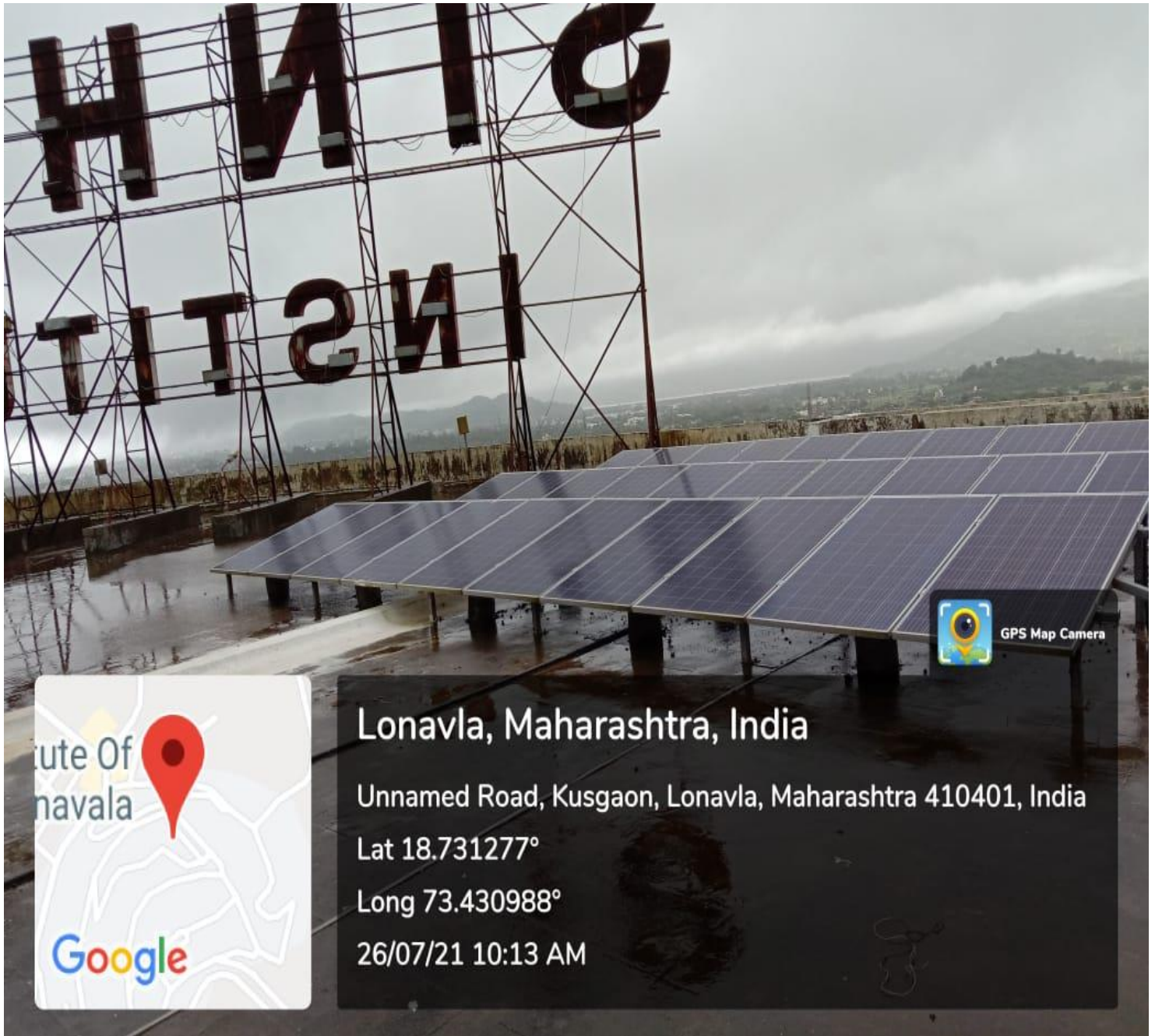
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1. **Solar energy (Y)**

A solar plant is installed on SIT Building 2.

The capacity of the plant is 10 kW. This generation plant is injecting the power in to distribution system of the campus thereby sharing the total load of the distribution system.

SOLAR POWER PLANT (10 kW)



Solar Power Plant (10 kW)

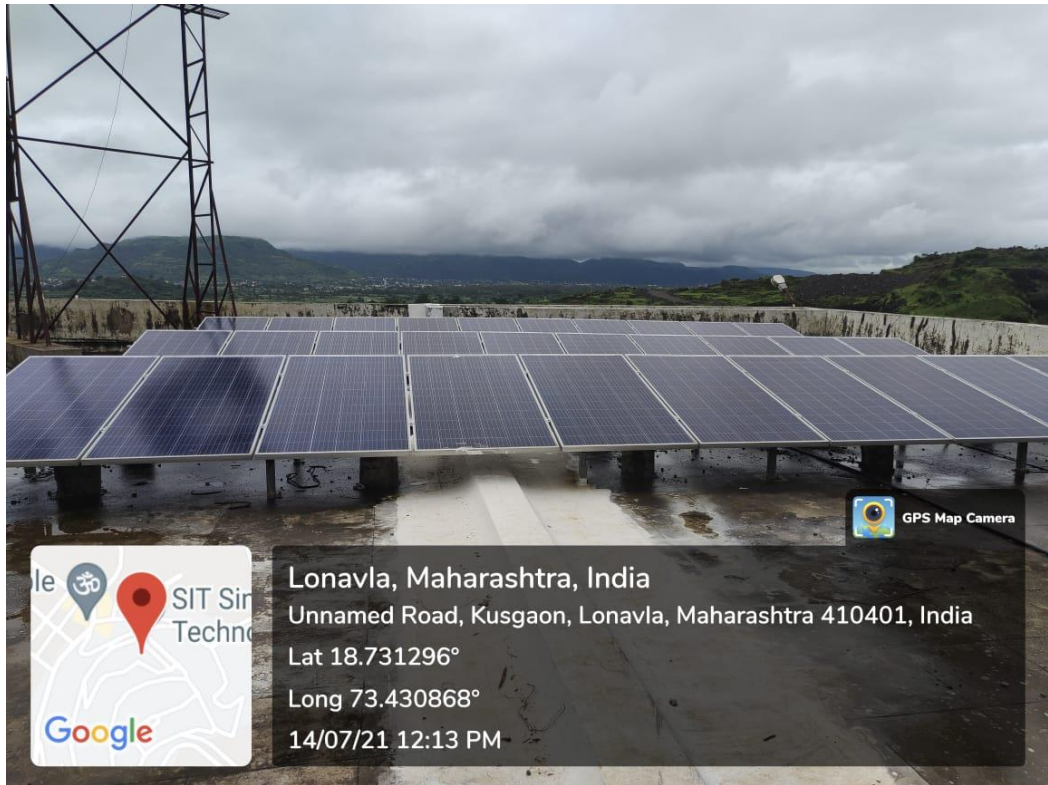


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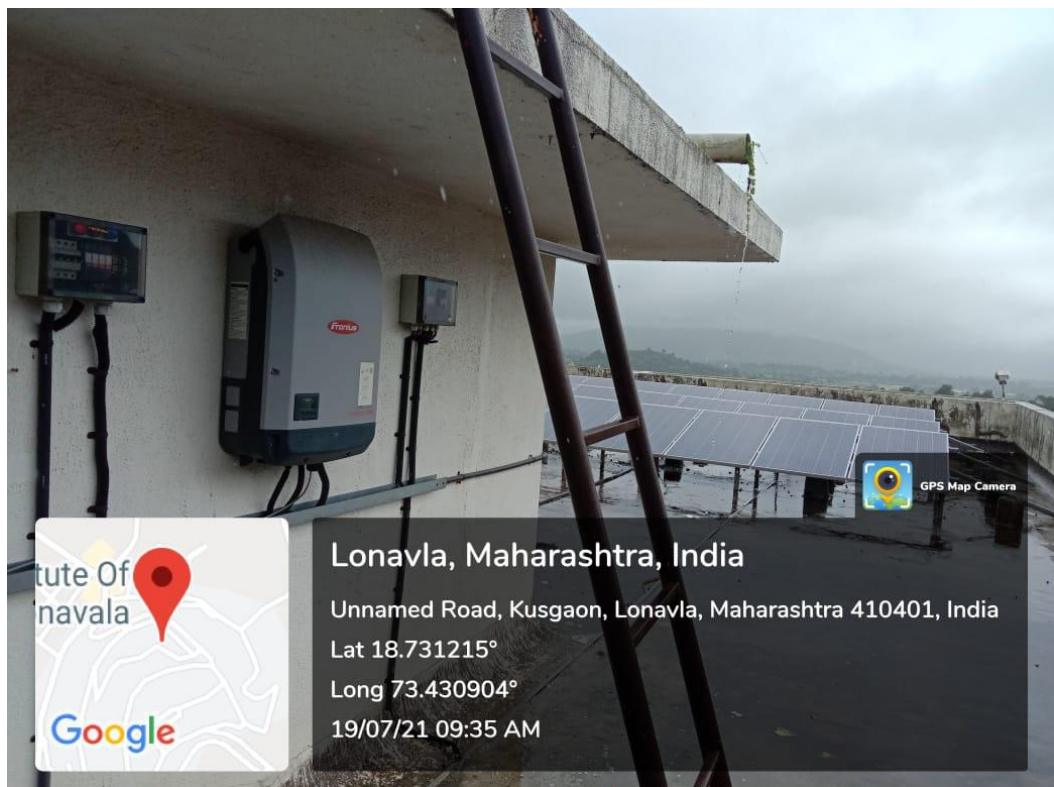
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Solar Power Plant (10kW)



Incoming-Convertor-Outgoing



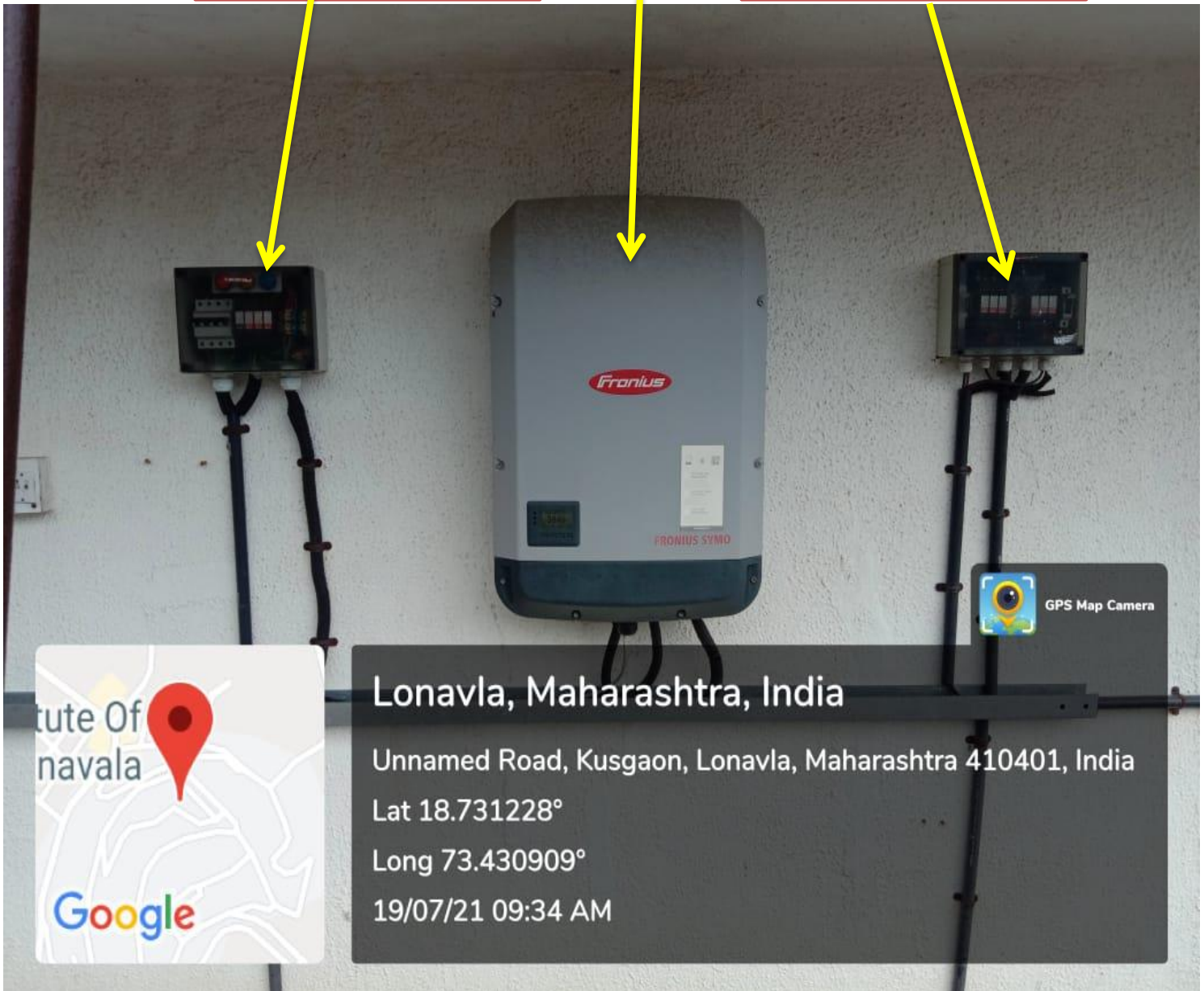
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From right to left: **1. A C Distribution Borad,** **2) Convertor,** **3) D C Distribution Board**



Incoming-Convertor-Outgoing



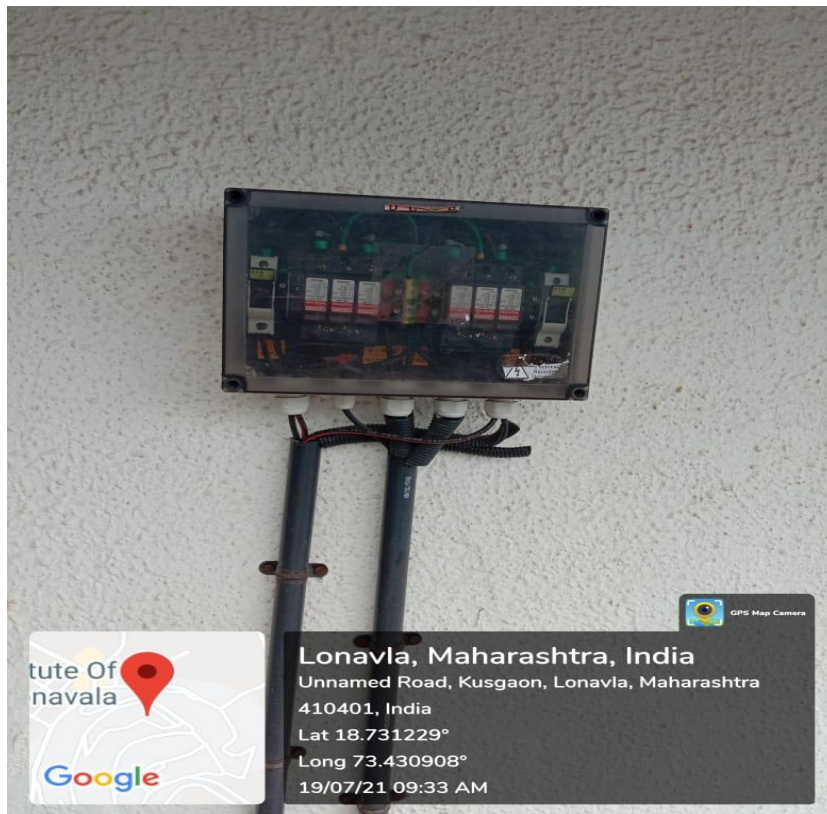
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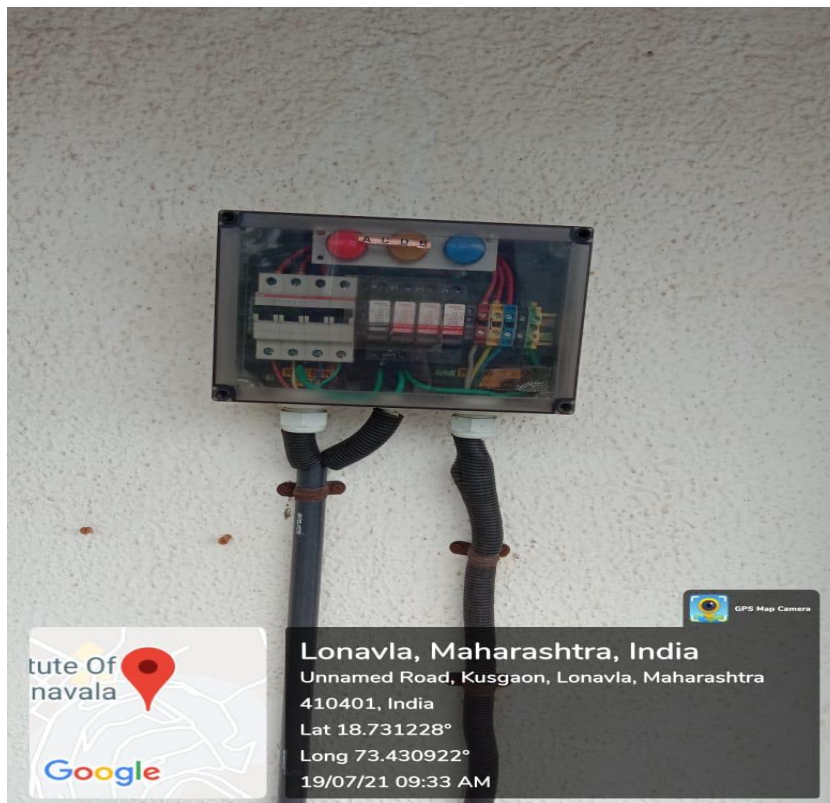
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DCDB & ACDB



D C Distribution Board



A C Distribution Board



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10 kW Solar Plant Tax Invoice:

Tax Invoice

GK Energy Marketers Pvt Ltd FLAT NO.350, BLDG NO 25 L.B.S. MAIN ROAD LOKMANYA NAGAR, NAVI PETH NEAR DANDEKA BRIDGE CIRCLE PUNE - 411 030 GSTIN/UIN: 27AADCG3379A1ZT State Name : Maharashtra, Code : 27 CIN: U74900PN2008PTC132R26 E-Mail : office@energy marketers.in		Invoice No. e-Way Bill No. Dated PNGK/18-19/024 23-Oct-2018
Buyer SINHGAD INSTITUTE OF TECHNOLOGY GAT NO- 309/310,KUSGAON (BK), OFF. MUMBAI-PUNE EXPRESS WAY, LONAVALA, PUNE-410401 State Name : Maharashtra, Code : 27		Delivery Note Mode/Terms of Payment Supplier's Ref. Other Reference(s) PNGK/18-19/024
		Buyer's Order No. Dated SIT/PO/2017-18 22-Dec-2017
		Despatch Document No. Delivery Note Date Despatched through: Destination Terms of Delivery

Sl No	Description of Goods	HSN/SAC	Quantity	Rate	per	Disc. %	Amount
1	SOLAR ROOFTOP SPV POWER PLANT-10KWP QIP (GK ENERGY MARKETERS PVT LTD)	85437092	10.00 KWP	61,904.76	KWP		6,19,047.62
	<i>Output CGST MH 2.50%</i>			2.50 %			15,476.19
	<i>Output SGST MH 2.50%</i>			2.50 %			15,476.19
Total			10.00 KWP				₹ 6,50,000.00

Amount Chargeable (in words) E. & O.E
Indian Rupees Six Lakh Fifty Thousand Only

HSN/SAC	Taxable Value	Central Tax		State Tax		Total Tax Amount
		Rate	Amount	Rate	Amount	
85437092	6,19,047.62	2.50%	15,476.19	2.50%	15,476.19	30,952.38
Total	6,19,047.62		15,476.19		15,476.19	30,952.38

Tax Amount (in words) : **Indian Rupees Thirty Thousand Nine Hundred Fifty Two and Thirty Eight paise Only**

Company's VAT TIN : 27720808726V
 Company's CST No. : 27720808726C
 Company's Service Tax No. : AADCG3379AST001
 Company's PAN : AADCG3379A

Declaration
 I hereby declare that this invoice shows the actual price of
 _____ for GK Energy Marketers Pvt Ltd

Tax Invoice (10kW Solar Plant)



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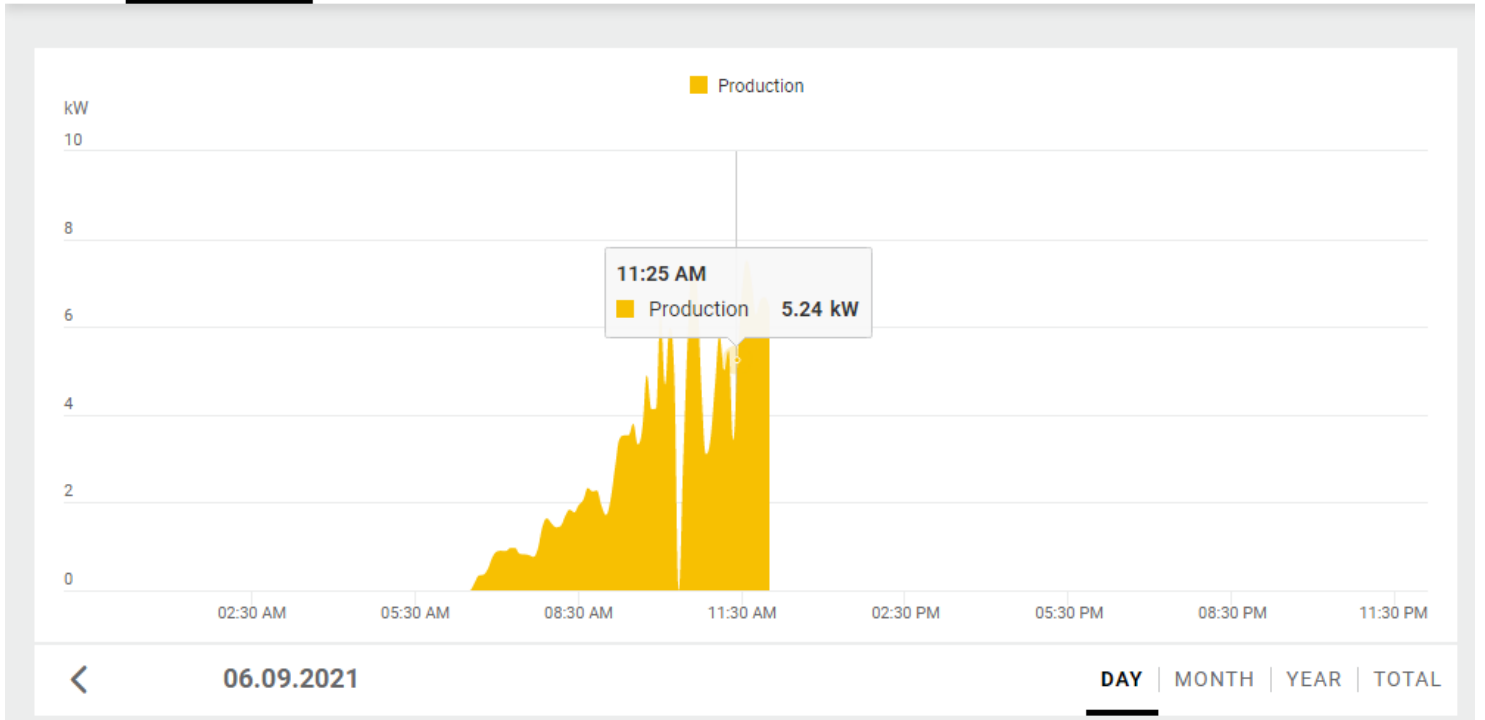
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Fronius Sinhgad Institute of Technology Product registration

← PRODUCTION | CONSUMPTION

17.41 kWh

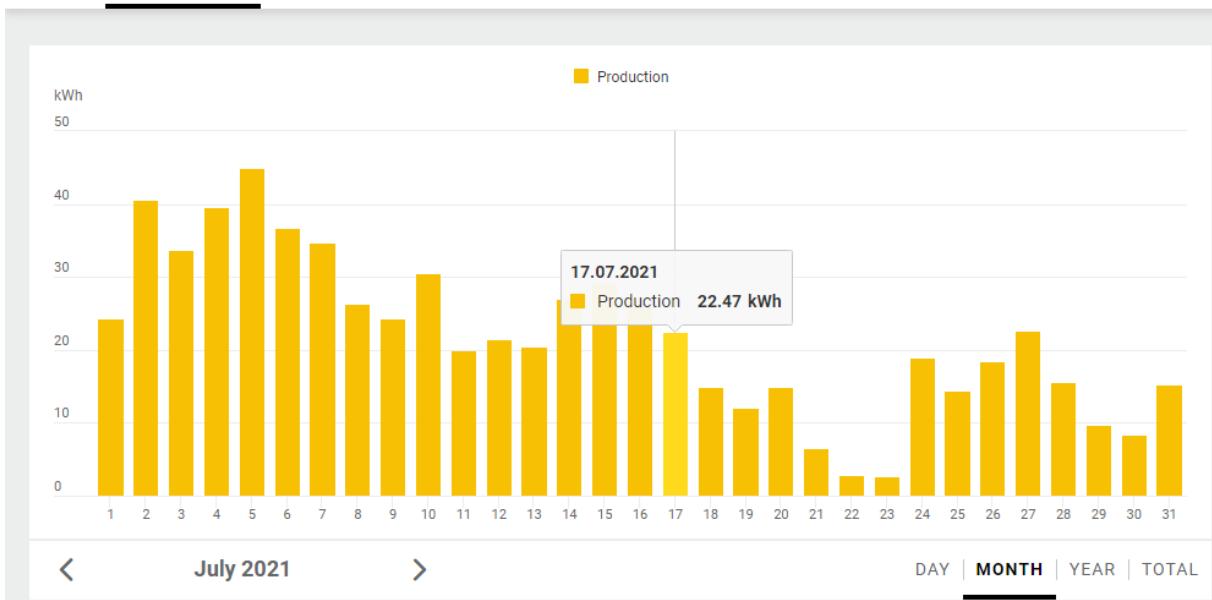


Daily Generation Sample

Fronius Sinhgad Institute of Technology Product registration

← PRODUCTION | CONSUMPTION | RETURN ON INVESTMENT PREMIUM | MORE ▾

680.25 kWh



Monthly Generation Sample (July 2021)

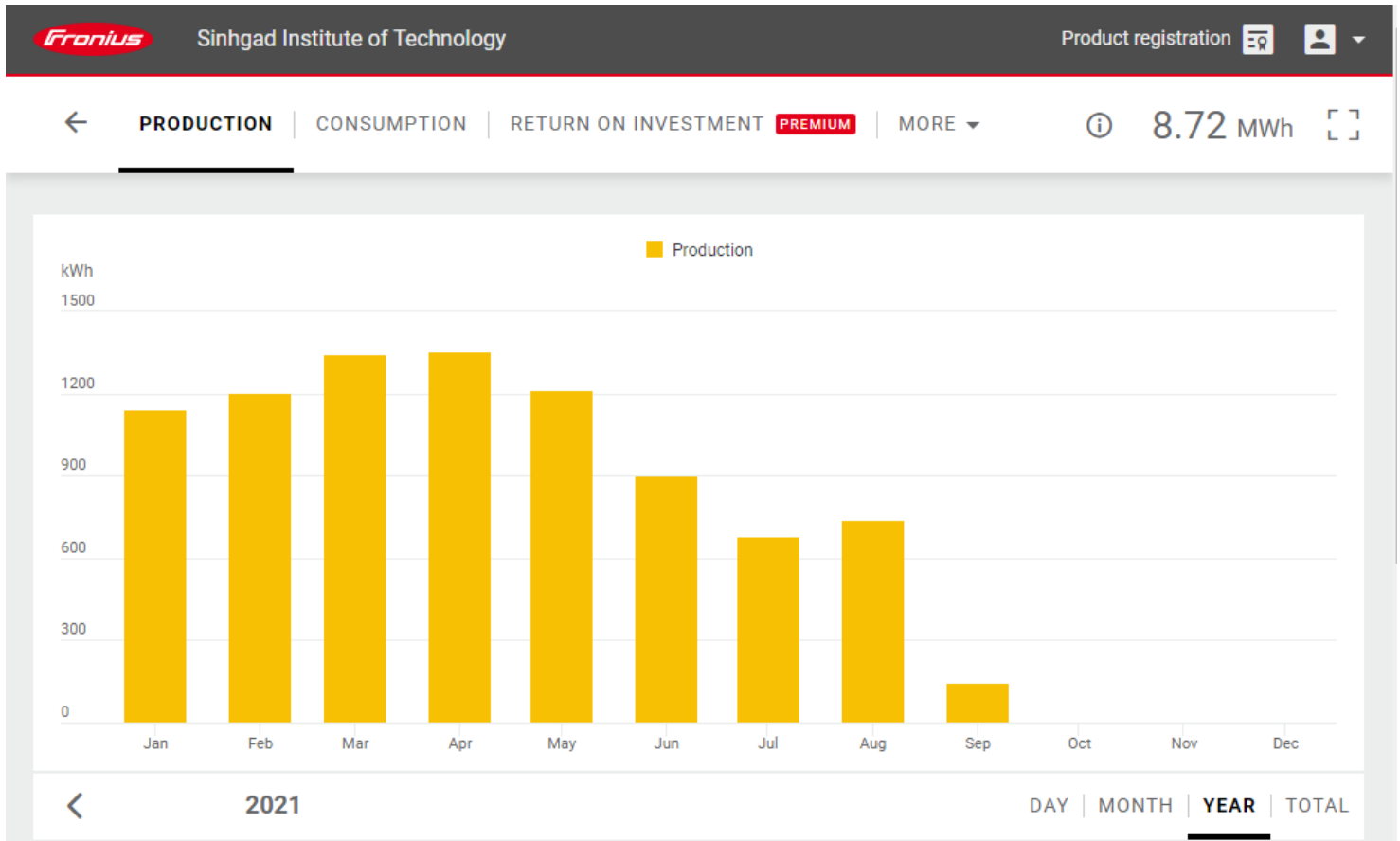


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Annual Generation

2. **Solar Thermal:**

10 hostels (Boys and Girls) have been provided with Solar Thermal Units for water heating purpose. This saves the use electricity as well as other sources adding the substantial amount of saving in overall energy as well as CO2 emission.

If the electrical heaters for hostels are used from grid electricity, then it is required to pay heavy charges to the state electricity board having Amt of 19,24,560/- but by the using of solar water heater system we are saving that charges and helpful to keep environment friendly campus.

HOT WATER SUPPLY:

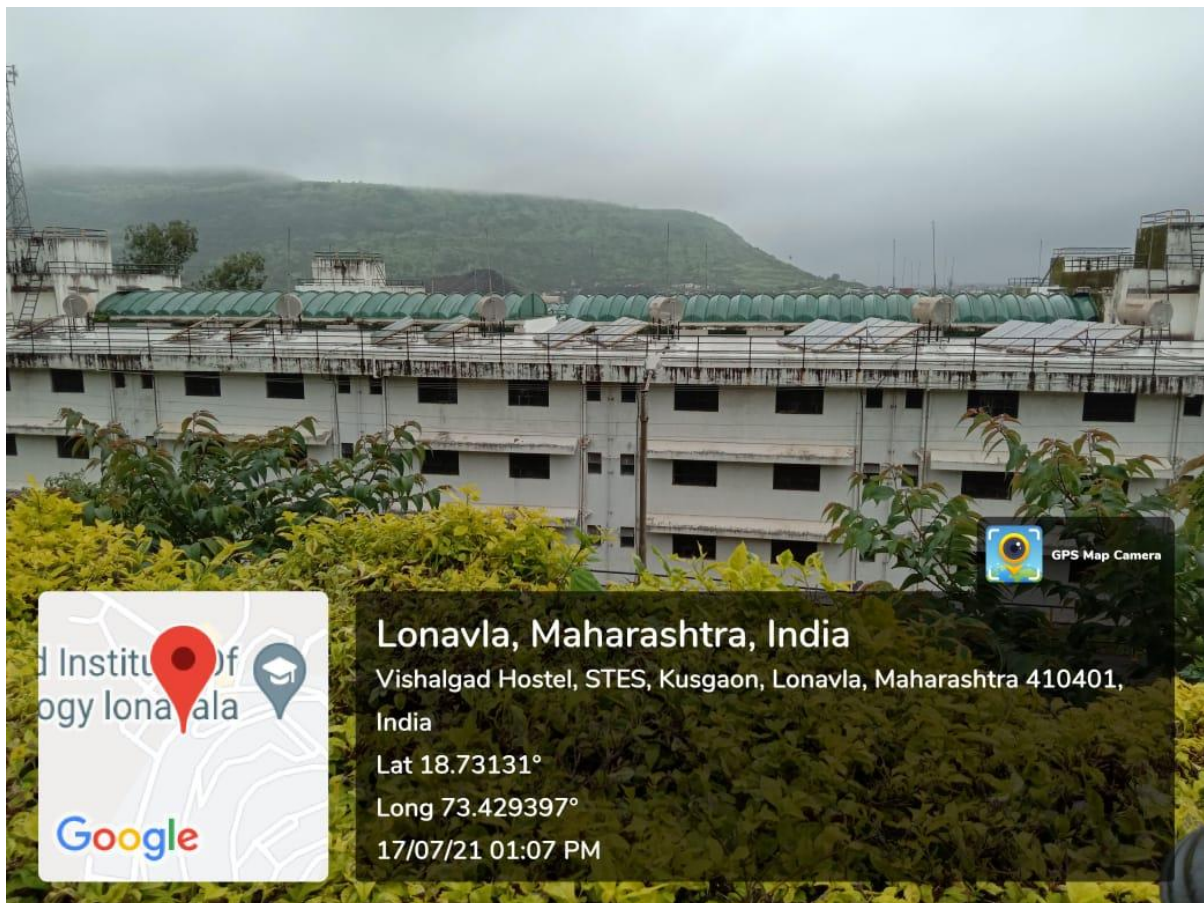
Hostels are provided with hot water through solar water heating system, water heat pumps and electric geysers. Water heat pumps system works on using latent heat from atmosphere and electricity thereby reducing electric consumption.

Dormitory is supplied with hot water through electric geysers.

a. Solar water heating system

Capacity: 1,08,600/day for 3528 Students

b. Heat Pumps System Capacity : 2500 liters/day for 72 Students



Solar Thermal



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Lonavla, Maharashtra, India

Gate No. 309/310, Kusgaon Budruk, Off Mumbai-Pune Expressway
Taluka Mawal, Dist. Pune, Kusgaon, Lonavla, Maharashtra 410401, India
Lat 18.730275°
Long 73.429472°
17/07/21 01:04 PM

Solar Thermal



SINHGAD TECHNICAL EDUCATION SOCIETY

(Regd. No. MAH / 7199-93 / Pune dt. 6/7/93 & F-8282 (Pune) dt. 12/8/93)

10/15, Erandwane, Smt. Khilari Marg, Off. Karve Road, Pune - 411 004. Telefax : (020) 2545 4008 Email : stes@sinhgad.edu

PROF. M. N. NAVALE
M.E. (ELECT.) MIE., MBA.
FOUNDER PRESIDENT

DR. (MRS.) SUNANDA M. NAVALE
B.A., MPM, Ph.D.
FOUNDER SECRETARY

Date :- 16.12.2008

P.O.No.H-135 /08-09

To,
Anant Urja
M-1, Nirant Colony,
Bibvewadi,
Pune :- 411 037.

Sub :- Supply and Installation of Solar Heating System for Hostel building (96 rooms) for Sinhgad Technical Education Society at Gat. No. 320, Kusgaon, Lonavala.

Rajgad Hostel

Sir,

This has reference to your quotation PRO./08-09/STES/3 dated 26.11.2008 and subsequent discussion you had with our Project Manager and we are pleased to place an order as per details given herebelow.

Sr. No.	Description	Unit	Qty.	Rate In (Rs.)	Amount In (Rs.)
1	Supply and Installation of Solar Water Heating System for 12000 Lpd Solar Water Heating System (As per specifications given in Annexure - I)	Nos.	01	16,50,000.00	16,50,000.00
	Total Amount				16,50,000.00

(Rupees Sixteen Lacs Fifty Thousand Only)

Terms And Conditions

1. Price : Above prices are for supply and installation of the system including all piping at Lonavala Campus.
2. Taxes : Inclusive of all taxes duties and any other levies.
3. Completion : Immediate.
4. Warranty : 7 years from the date of installation.
5. Payment : The payment shall be made on satisfactory completion of the work and certification of the bill by our Engineer.
6. Billing : Bill to be raised in favour of Sinhgad Technical Education Society at Lonavala.

Thanking you,

Yours faithfully

M.N. Navale
M.N.NAVALE
PRESIDENT

Seen
A
DR
23/12/12



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Annexure - I

Technical Specifications

SWHS of 12000 Lpd @ 60° C

Capacity : 12000 Lpd per SWHS

No of SWHS : 2000 Lpd x 06 Nos.

Output

Temperature : 60° C

Type of SWHS : Gravity - flow

Tank : Insulated S.S. Tank

BIS approved & laser/ ultrasonic welded collector panel 96 Nos.

Tank stands 06 Nos.

Collector Support :

Cold water piping : G.I. 1" x 5 mtr. x 06 Nos.

G.I. 1/2" x 6 mtr. x 06 Nos.

System piping : G.I. 1" x 20 mtr. x 06 Nos.

Utility piping : KiTEC : 3/4" x 35 mtr. x 06 Nos.

KiTEC : 1/2" x 70 mtr. x 06 Nos.

Bib cocks : 1/2" x 96 Bathrooms

Collector Panel

Make : BIS - approved, Branded

Type : Cu fins-Cu pipes

Welding : LASER

Absorber : Selective -absorption coating

Coating

Finish : Powder coated

Certification : BIS-approved, as per IS:12933

Collectors Supports

Material : Frame -M.S. Angle 35mm x 35mm x 4mm thick.

M.S. Angle 20mm x 20mm x 3mm thick.

Finish : Red oxide primer, black finish paint.

Tank

Capacity : 2000Ltr.

Type : Horizontal, depressurized

Dimensions : Ø 1000mm x 2500 mm L

Ends : Conical

Material : S.S. 304, JINDAL make / imported

Shell- 14SWG/2mm; Conical ends-14SWG/2mm : 2000Ltr

End fittings : S.S.304

Welding : TIG

Cladding : Aluminum 24SWG, HINDALCO/BALCO-make

Contd...2

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: 2 :

Insulation : Rockwool, density 48 kg/m³, 100 mm thickness
Sacrificial : Aluminum Ø 12.5 mm (Useful only upto hardness of 100 mg/Ltr.)
Anode

Tank Stand

Material : Tank legs - M.S. Angle 50mm x 50mm x 5mm thick;
Tie brace- M.S. Angle 35mm x 35mm x 5mm thick
Saddle support-M.S. flat 100mm x 6mm thick
Base Plate - 75mm x 6mm thick
Finish : Red oxide primer, black finish paint.

Cold piping & System piping

Material : G.I. 'B' class, galvanized as per IS:1239
Make : B.I.S. - approved (I.S.I. mark)
Pipe fittings : B.I.S.-approved (I.S.I. mark)
Insulation (for : Rockwool pipe section, density 144 kg./m³, 25mm thickness
System piping)

Utility Piping

Material : Multi-layered composite (Aluminum/ Polyethylene composite)
Make : KiTEC PR PL (Plumbing-grade), as per BS 7291:part I:1990
Pipe fittings : KiTEC composite compression fittings-internal sealing

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82" x 42"

3

✓

3. **Wheeling to the Grid :**

The energy generated from Solar PV plant is fed into the distribution grid of the campus.. Daily generation hours on an average is 8 hours. Thus daily generation is

10kW * 8 Hrs= 80 kWh

Monthly Contribution: 80*30=2400 Units

Annually, Generation (wheeling) = 29200 kWh (Units)

Saving (Rs):

Monthly: 24,000/-

Annually: 2,92,000/-



Generation Display

4. **Sensor-based energy conservation (Y)**

- A pilot model for energy conservation is built in SIT Building 2 which is based on sensor. This uses the electricity only when any person is passing by the passage. For all other times, the tube-lights in the passage remain off thereby saving unnecessary use of electricity
- A smart class room is designed. This class room is provided with sensor based switching ON and OFF of electrical equipments fitted in it like tube-lights, fan etc



Smart Classroom

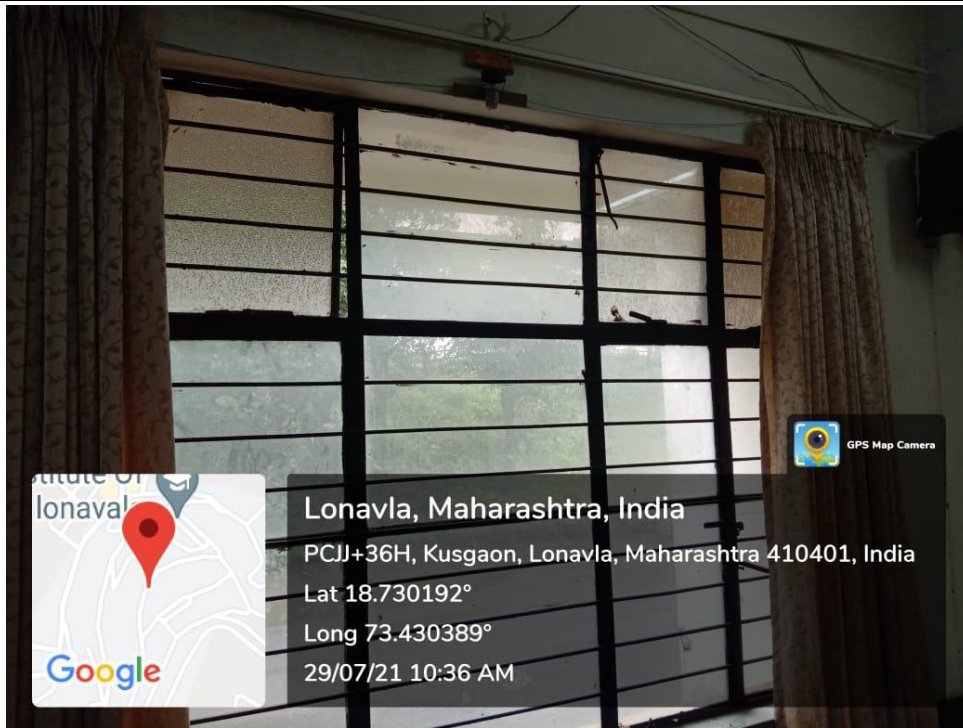


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Smart Classroom Curtain



Smart Classroom Control Kit



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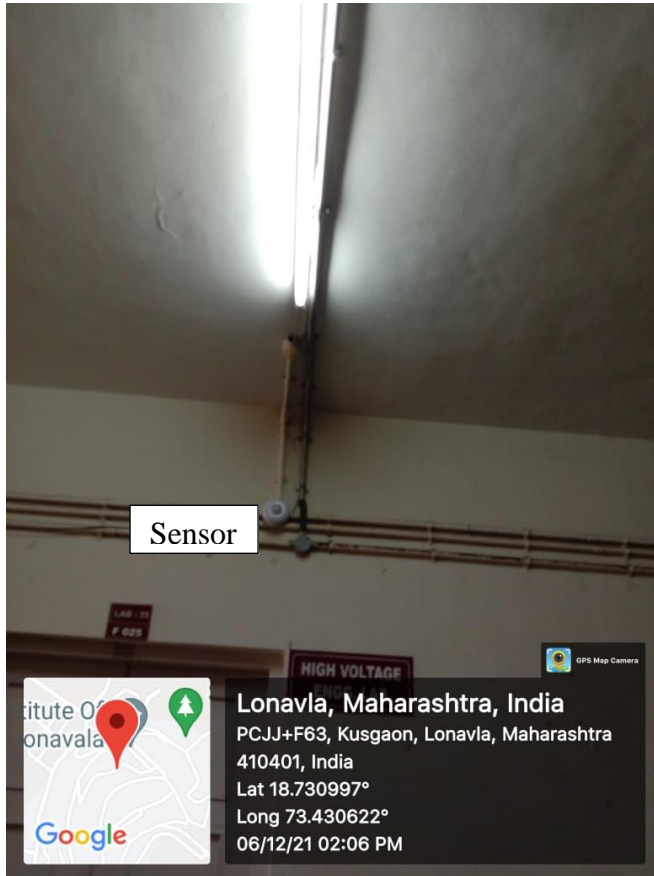


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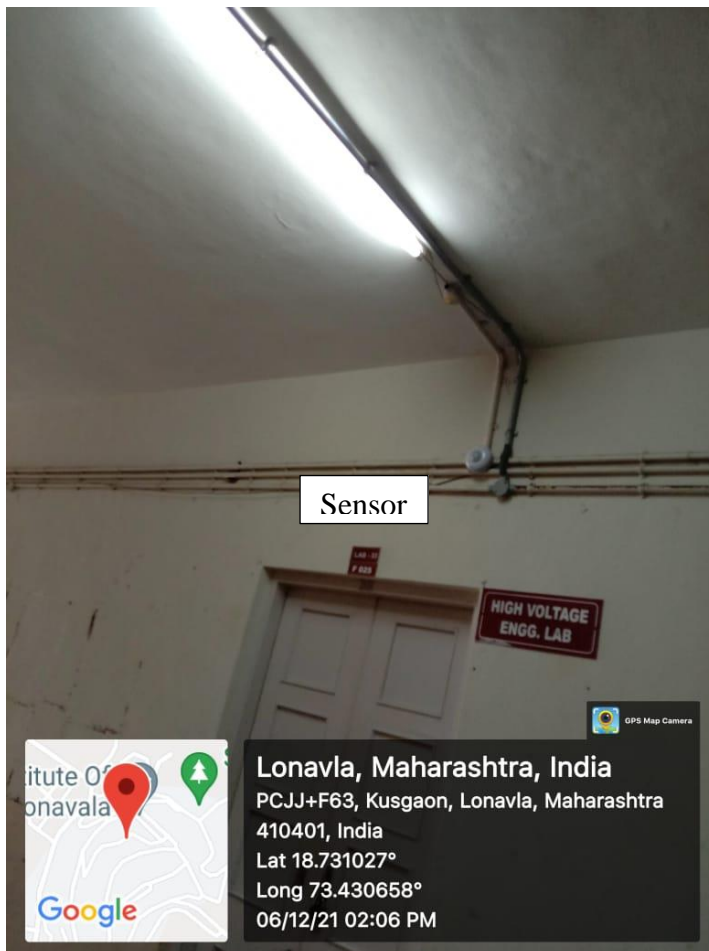
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Sensor Based Lighting



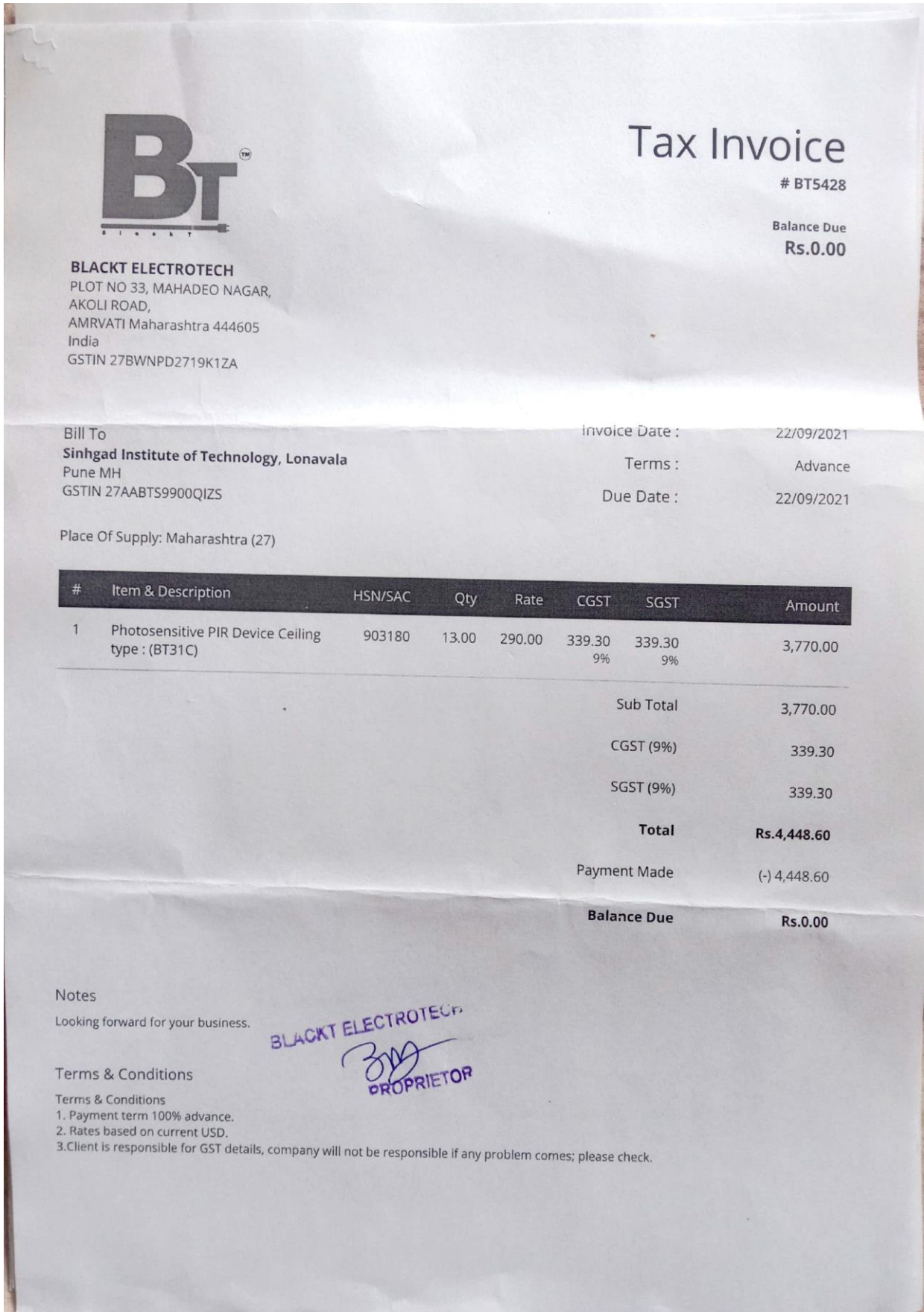


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Bill For Tube-light Sensor



5. Use of LED bulbs/ power efficient equipment(Y)

Use of LED is preferred in many locations for electrical energy efficient use. For example, a sports complex constructed at Foot Ball Ground is illuminated using LED bulbs instead for usual 40W fluorescent tube lights. **This** is now adding to savings of comparative electricity usages. Additionally, it also helps to keep the Maximum Demand of the electricity limited and thus limits the overall energy burden of the campus.

Details of the LED lighting used for the sports complex building at STES campus Lonavala:-

- 1) 18 Watt LED tube lights instead of the 36Watt Fluorescent tube lights.
 - We have used **66 Nos. LED** tubes of having rating of the **18Watt** instead of the conventional 36Watt fluorescent tubes. If we consider the Avg. 6Hrs. Of working per day then the energy will get saved as follows, If we use Conventional lighting it will going to consume energy of (36Watt x 66 Nos. = 14.25Kwh/day= 14 x 30 = 420 Kwh/Month.) 420Kwh/Month, Instead of this we have used Led lighting system having consumption details as (18Watt x 66 Nos. = 07.12Kwh/day= 7 x 30 = 210 Kwh/Month.).
 - **Therefore we are saving almost 50% energy by using LED lights at Sports complex building.**
- 2) 18 Watt LED down lighters instead of the 36Watt Fluorescent fittings.
 - We have used **50 Nos. LED** down lighters of having rating of the 18Watt instead of the conventional 36Watt fluorescent fittings. If we consider the Avg. 6Hrs. Of working per day then the energy will get saved as follows, If we use Conventional lighting then it will going to consume energy of (36Watt x 50 Nos. = 10.80Kwh/day= 10 x 30 = 300 Kwh/Month.) 300Kwh/Month, Instead of this we have used Led down lighter lighting system having consumption details as (18Watt x 50 Nos. = 05.40Kwh/day= 5 x 30 = 150 Kwh/Month.).
 - **Therefore we are saving almost 50% energy by using LED lights at Sports complex building.**
- 3) **100 Watt LED** focus lighters instead of the 200Watt Fluorescent fittings.
 - We have used **40 Nos. LED** focus lighters of having rating of the 100Watt instead of the conventional 200Watt fluorescent fittings.
 - If we consider the Avg. 6Hrs. Of working per day then the energy will get saved as follows, If we use Conventional lighting then it will going to consume energy of (200Watt x 40 Nos. = 48Kwh/day= 48 x 30 = 1440 Kwh/Month.) 1440Kwh/Month, Instead of this we have used Led focus lighting system having consumption details as (100Watt x 40 Nos. = 24Kwh/day= 24 x 30 = 720 Kwh/Month.).
 - **Therefore we are saving almost 50% energy by using LED lights at Sports complex building.**



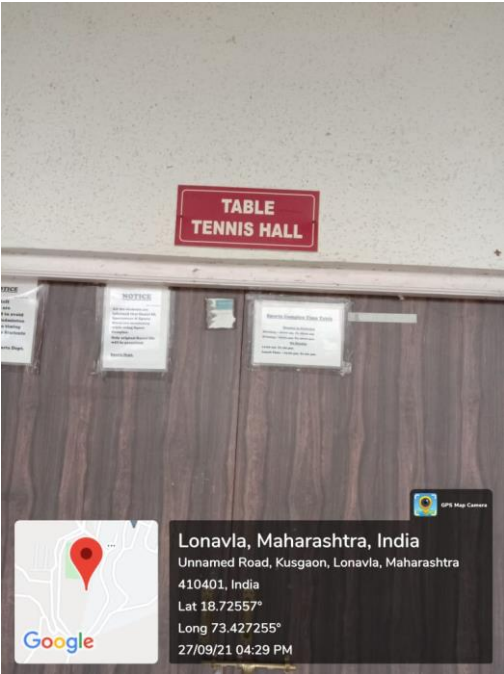
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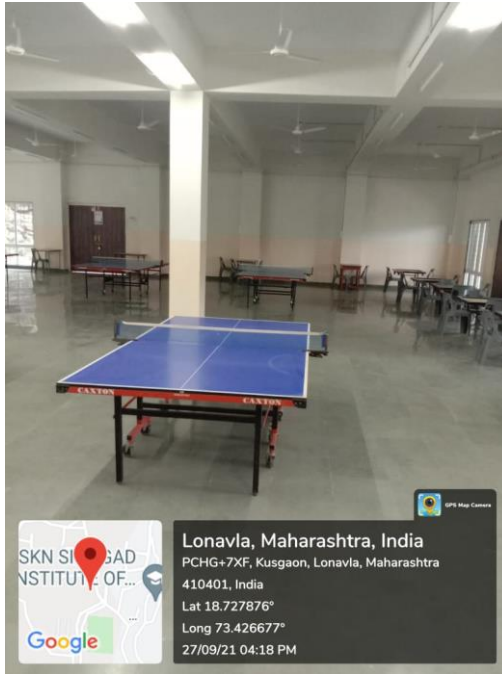
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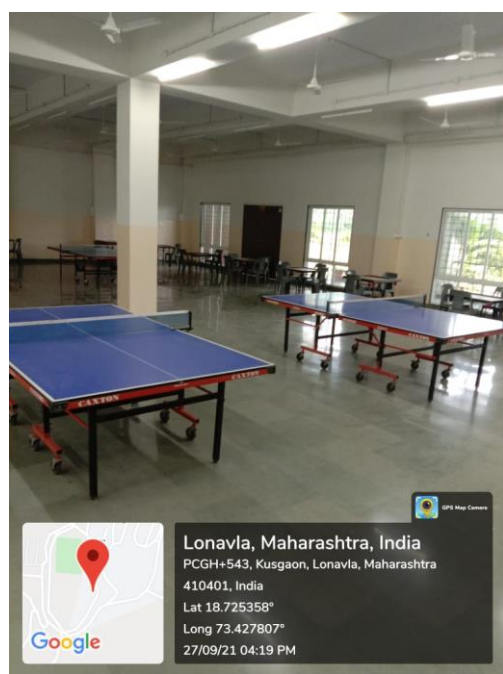
SPORTS Complex, Sinhgad Institutes, Lonavala



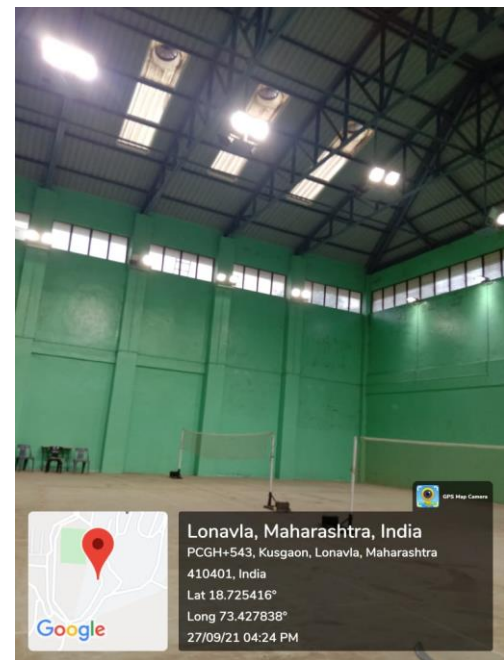
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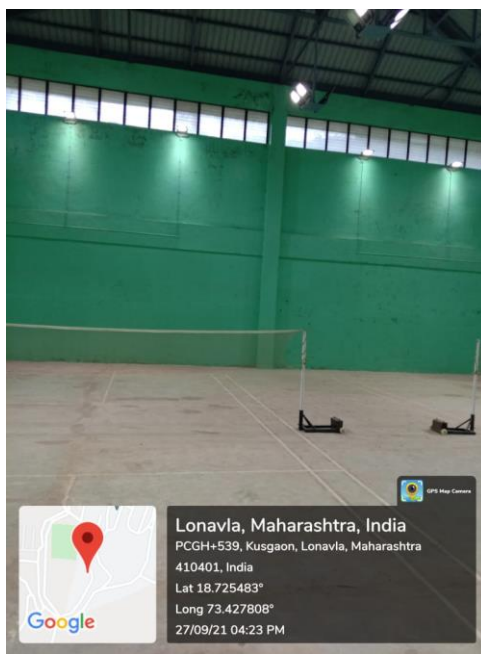
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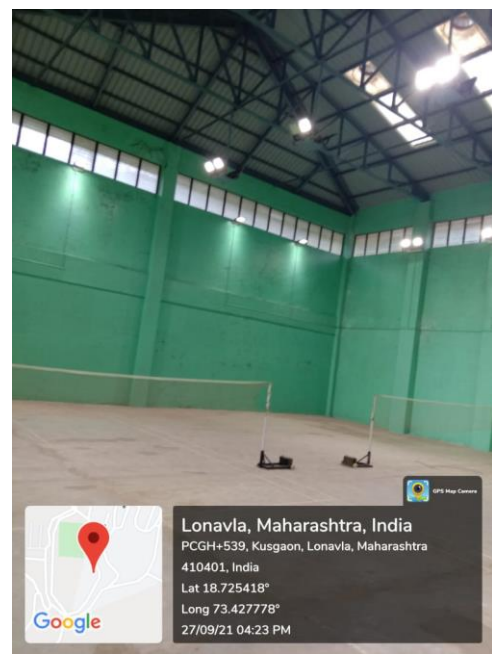
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410401, India
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Long 73.427807°
27/09/21 04:19 PM



Lonavla, Maharashtra, India
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410401, India
Lat 18.725416°
Long 73.427838°
27/09/21 04:24 PM



Lonavla, Maharashtra, India
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410401, India
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27/09/21 04:23 PM



Lonavla, Maharashtra, India
PCGH+539, Kusgaon, Lonavla, Maharashtra
410401, India
Lat 18.725418°
Long 73.427778°
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LED Purchase Order:



SINHGAD TECHNICAL EDUCATION SOCIETY

(Regd. No. MAH / 7199-93 / Pune dt. 6/7/93 & F-6282 (Pune) dt. 12/8/93)

Sinhgad Institutes

19/15, Erandwane, Sena, Khilare Marg, Off Karve Road, Pune - 411 004.

Telefax. : (020) 2545 4006 Email : stes@sinhgad.edu Website : www.sinhgad.edu

PROF. M. N. NAVALE
M.E. (ELECT.) ME., MBA.
FOUNDER PRESIDENT

DR. (MRS.) SUNANDA M. NAVALE
B.A., MPM, Ph.D
FOUNDER SECRETARY

P.O.No. 85/17-18

Date :- 12.01.2018

To,
INDOMAX MULTI-TRADES
106-Daisy, Silver Dale, 66/B,
B T Kawade Road, Ghorpadi,
Pune-411 001.

Sub:- Supply of LED Floodlight for STES at Kusgaon- Lonavala.

Sir,

This has reference to your quotation No. QTN/IMD/-0118 dated 10.01.2018 and discussion with our Project Manager we are pleased to place an order for supply of material as per details given here below.

Sr. No.	Description	Unit	Qty	Rate In (Rs.)	Amount In (Rs.)
1	Supply of BJFL 100W LEDs HSN Code: 94054090.	Nos.	40	6350.00	2,54,000.00
2	Supply of BCLSB 18W 4ft Batten HSN Code: 94051090	Nos.	66	450.00	29,700.00
3	Supply of surface mounted 18W Downlighter HSN Code: 94051090	Nos.	89	800.00	71,200.00
Total Amount					3,54,900.00
Add GST 12%					42,588.00
Net Amount					3,97,488.00

(Rupees Three Lacs Ninety Seven Thousand Four Hundred Eighty Eight only)

Terms and Conditions

1. Price : Above prices is inclusive of all taxes, duties and GST.
2. Completion : 1 Week.
3. Delivery : FOR Site.
4. Warranty : Flood light and batten- 60 months, Surface downlighter -24 months from the date of supply.
5. Payment : On delivery and certification of bill by our Site Engineer.

Thanking you,

Yours faithfully

M.N.NAVALE
PRESIDENT

