7.1.2 Sensor based energy conservation system-report

The manual systems are transforming into smart systems with the incorporation of Embedded Systems. It is a real time project which is used to automate the Lights and Fans in the classrooms without the manual operating by humans. Smart control of electric devices has become inevitable so as to make energy conservation to the possible extent. A fan or a light may be in an ON state and may be functioning without any person or a group of people actually being around the electric device. There is a lot of wastage in electricity due to lack of proper monitoring done on the devices we use. The lights and fans in the classroom environment are not turned OFF after using them so more amount of power is consumed. What if we have a system which automatically switches ON and OFF the electric devices we use in the classroom environment. In order to overcome this problem A Smart Classroom system is developed. The smart system contains an Arduino Uno microcontroller, RFID reader, RFID sensor tags, Relay board, electrical devices such as Lights and Fans. The Arduino Uno microcontroller is the main element in this system which corresponds to initiate necessary actions. The RFID reader emits EM signals, the emitted EM signals are sensed by the RFID tags. The RFID sensor tag sends back tag information to the RFID reader. Two separate RFID sensor tags are used for ON and OFF. The RFID reader upon detecting the RFID sensor tag which corresponds to ON operation, without human intervention the lights and fans in the classroom are turned ON automatically with the aid of microcontroller and relay. The RFID reader upon detecting the RFID sensor tag which corresponds to OFF operation, without human intervention the lights and fans in the classroom are turned OFF automatically with the aid of microcontroller and relay. The switching ON and OFF of the electrical devices are done by the relay. By this project energy conservation is done.
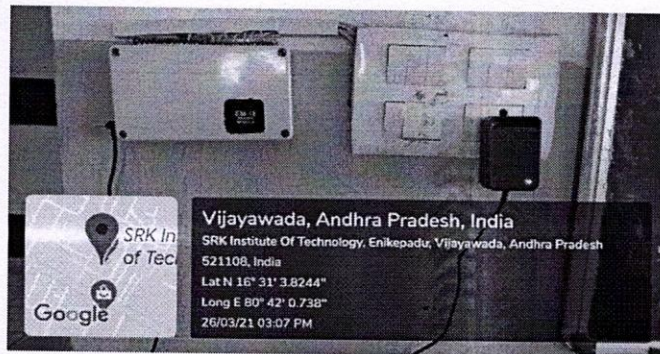
PRINCIPAL
SRK Institute of Technology
ENIKEPADU, VIJAYAWADA-521 108.
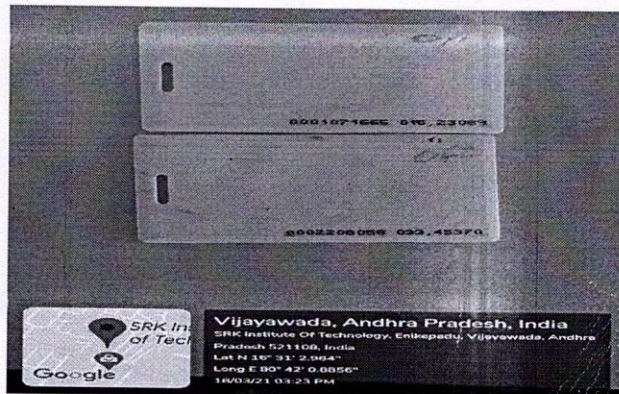
(i)   Block diagram of the developed system
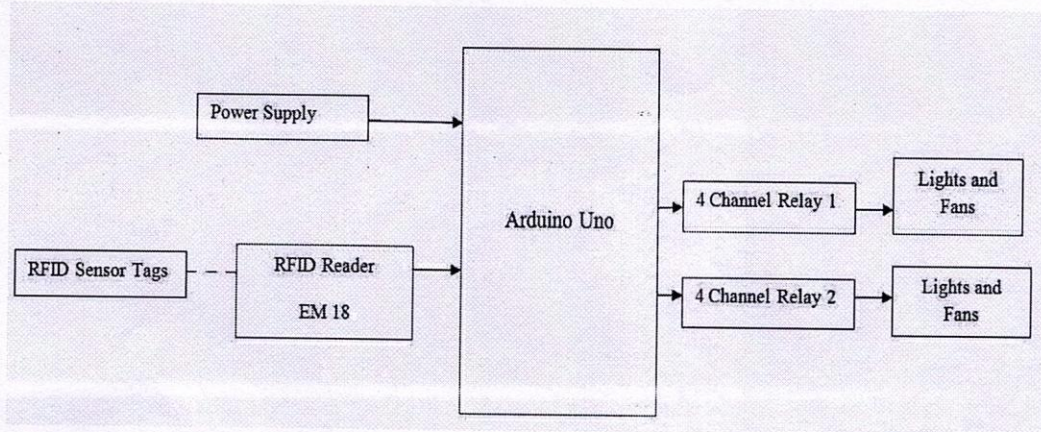
(ii)   Geo-tagged Photographs

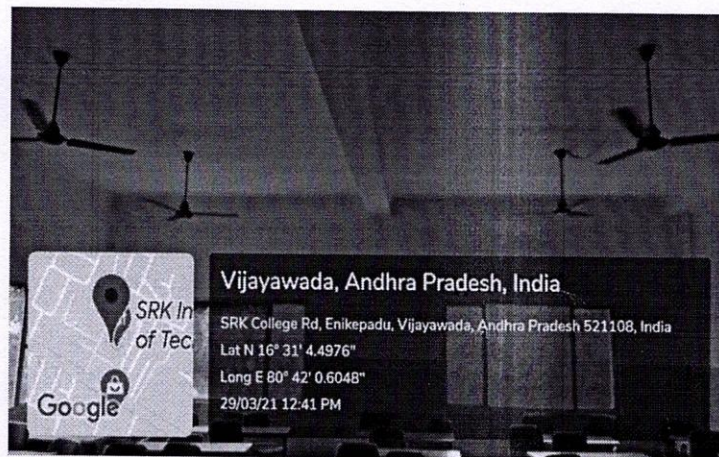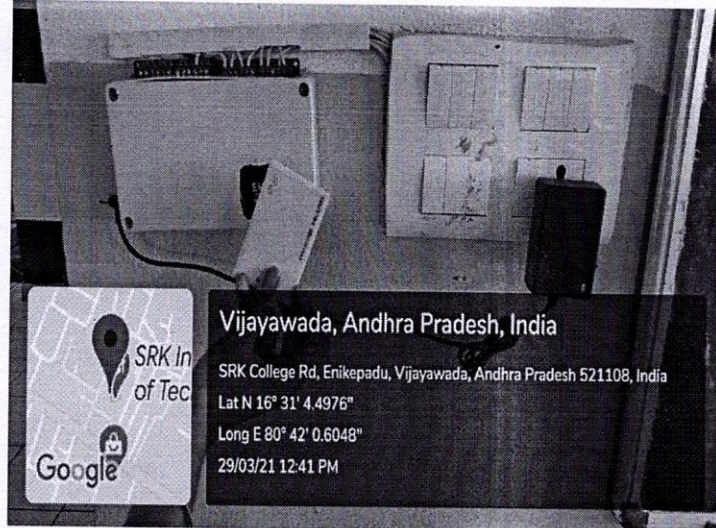(a) Hardware of the implemented system

(b) RFID sensor Tags for ON/OFF

(c) Upon scanning the RFID sensor tag which initiates the ON operation, then electrical devices are turned ON
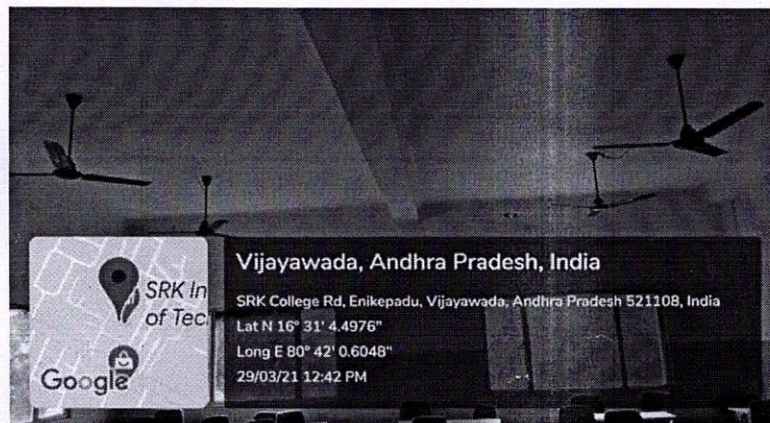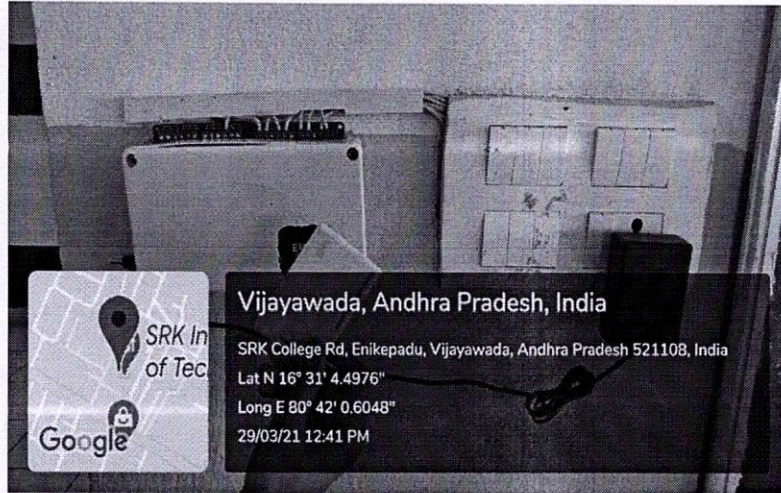

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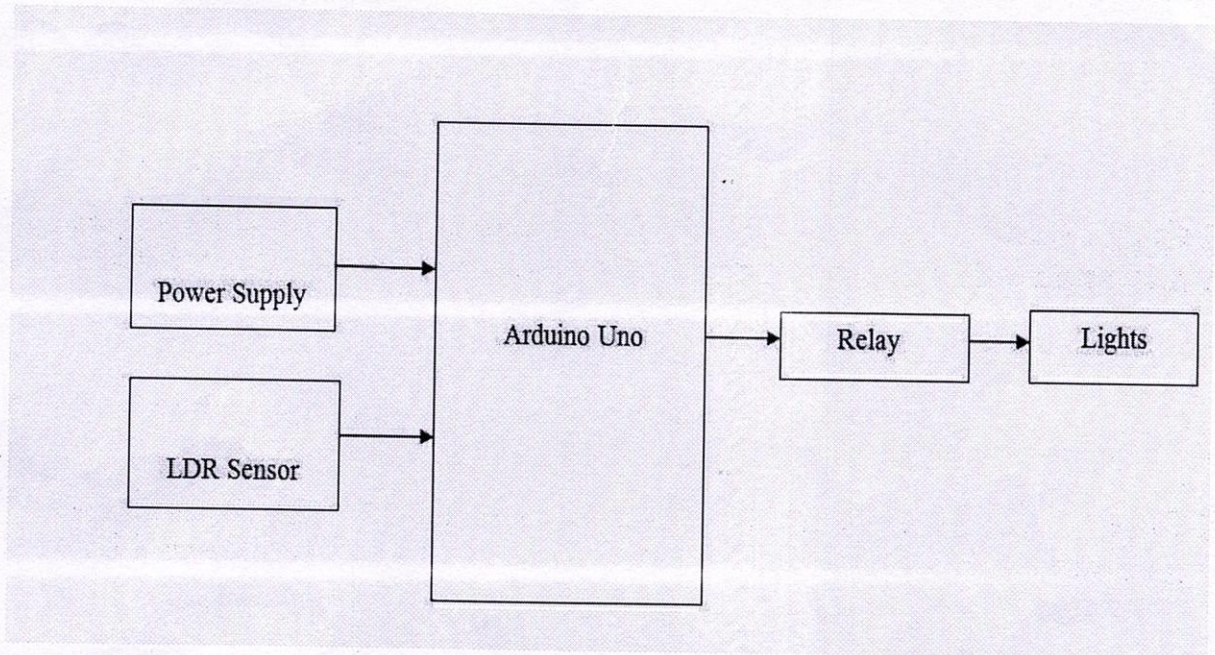ENIKEPADU, VIJAYAWADA-521 108.

(d) Upon scanning the RFID sensor tag which initiates the OFF operation, then electrical devices are turned OFF

7.1.2 Sensor based energy conservation system-report

The manual systems are transforming into smart systems with the incorporation of Embedded Systems. It is a real time project which is used to automate the Light in the corridor without the manual operating by humans. Smart control of electrical devices has become inevitable so as it leads to energy conservation to the possible extent. A light may be in an ON state and may be functioning even though it is day time. There is a lot of wastage in power due to lack of proper monitoring done on the devices we use. The lights are not turned OFF after using them so more amount of electricity is consumed. If we have a system which automatically switches ON and OFF the electric devices such as lights. In order to overcome this problem a Smart system is developed. The smart system contains an Arduino Uno microcontroller, light dependent resistor sensor, Relay board and electrical devices such as Lights. . The beauty of the proposed work is that the wastage of unused electricity can be reduced, lifetime of the lights gets enhance because the lights do not stay ON during the day time. The Arduino Uno microcontroller is the main element in this Automation system which corresponds to initiate necessary actions. The Light dependent Resistor (LDR) sensor measures the light intensity. If the light intensity is less than the threshold value, the microcontroller Arduino Uno takes the decision to turn ON the lights in the evening with the help of relay. If the light intensity is more than the threshold value, the microcontroller Arduino Uno takes the decision to turns OFF the lights in the morning with the help of relay. The switching ON and OFF of the lights are done by the relay. By using LDR sensor energy conservation is done.

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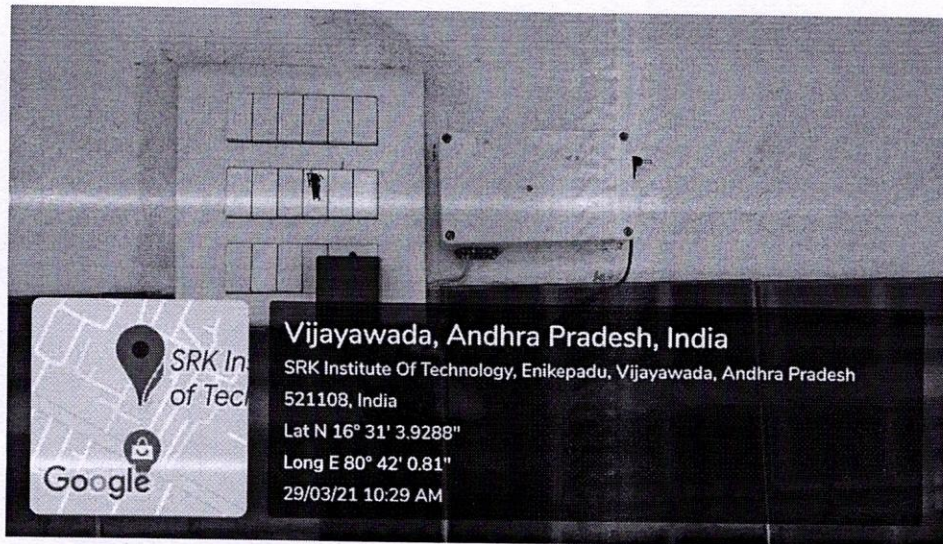SRK Institute of Technology
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(i)   Block diagram

(ii)   Geo-tagged Photographs

(a) Hardware of the implemented system

Vijayawada, Andhra Pradesh, India
SRK Institute Of Technology, Enikepadu, Vijayawada, Andhra Pradesh
521108, India
Lat N 16° 31' 3.9288"
Long E 80° 42' 0.81"
29/03/21 10:29 AM

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(b) In the morning Lights are turned OFF

Vijayawada, Andhra Pradesh, India
SRK College Rd, Enikepadu, Vijayawada, Andhra Pradesh
521108, India
Lat N 16° 31' 4.1916"
Long E 80° 42' 1.026"
29/03/21 10:45 AM

(c) In the evening Lights are turned ON

Vijayawada, Andhra Pradesh, India
SRK College Rd, Enikepadu, Vijayawada, Andhra Pradesh 521108, India
Lat N 16° 31' 4.2492"
Long E 80° 42' 0.828"
31/03/21 06:26 PM

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7.1.2 Sensor based energy conservation system-report

The manual systems are transforming into smart systems with the incorporation of Embedded Systems. It is a real time project which is used to automate the Lights and Fans in the classrooms without the manual operating by humans. Smart control of electric devices has become inevitable so as to make energy conservation to the possible extent. A fan or a light may be in an ON state and may be functioning without any person or a group of people actually being around the electric device. There is a lot of wastage in electricity due to lack of proper monitoring done on the devices we use. The lights and fans in the classroom environment are not turned OFF after using them so more amount of power is consumed. If we have a device which automatically switches ON and OFF the electric devices we use in the classroom environment. In order to overcome this problem a Smart system is developed. The smart system contains an Arduino Uno microcontroller, ultrasonic sensor, keypad, Relay board, electrical devices such as Lights and Fans. The beauty of the proposed work is that the wastage of unused electricity can be reduced, lifetime of the lights and fans gets enhance. The Arduino Uno microcontroller is the main element in this Automation system which corresponds to initiate necessary actions. The user to initiate the working of the system must ensure to type the password in the keypad. If the user enters a correct password then sensor will be in an active state ready for detecting the obstacles. If the user places any obstacles upon the Ultrasonic sensor the lights and fans in the room are turned ON automatically with the aid of microcontroller and relay. If the user enters a wrong password then ultrasonic sensor is inactive state. The switching ON and OFF of the electrical devices are done by the relay. By this project energy conservation using Ultrasonic sensor is done.

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(i)   Block diagram

(ii)   Geo-tagged Photographs
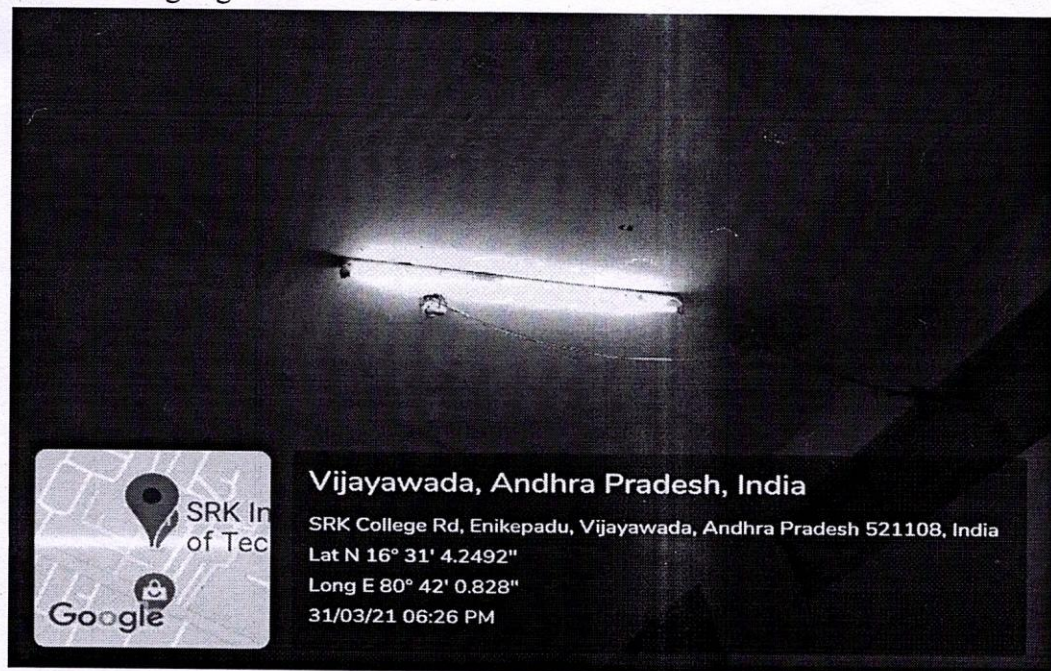
(a) Hardware of the implemented system

Vijayawada, Andhra Pradesh, India

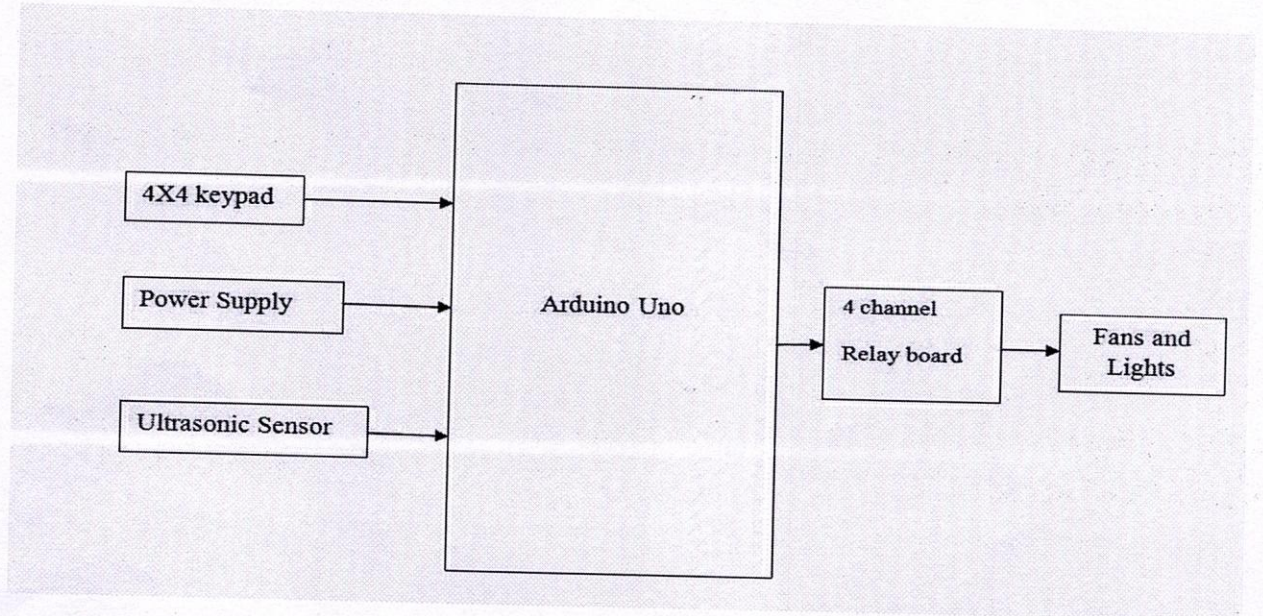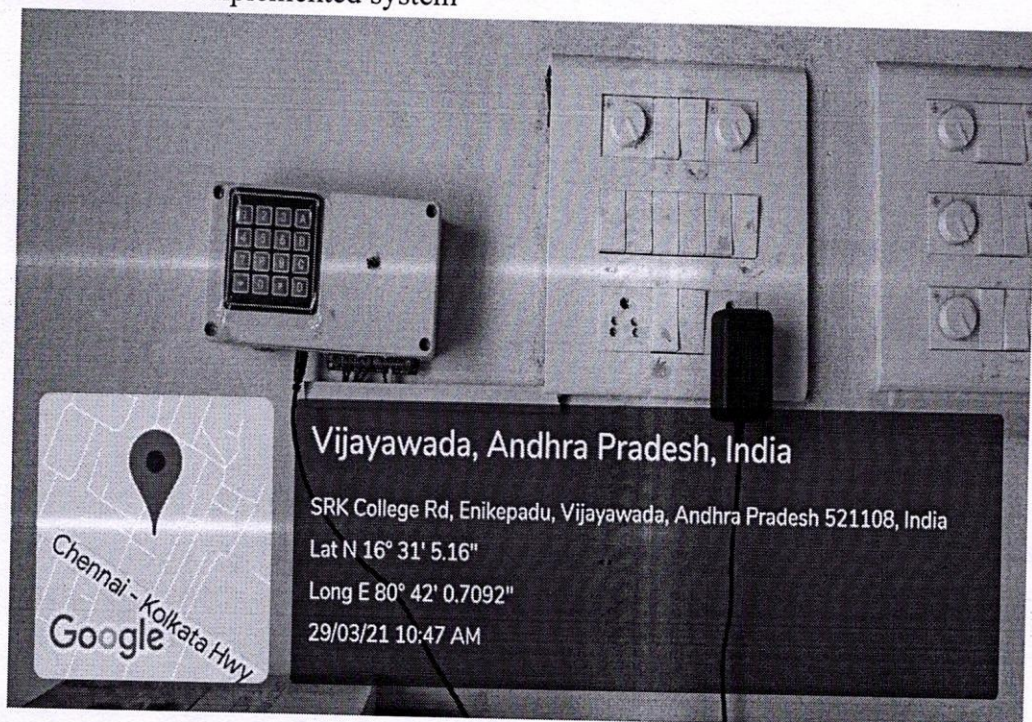SRK College Rd, Enikepadu, Vijayawada, Andhra Pradesh 521108, India
Lat N 16° 31' 5.16"
Long E 80° 42' 0.7092"
29/03/21 10:47 AM
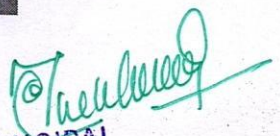
(b) User typing the password to enable the ultrasonic sensor
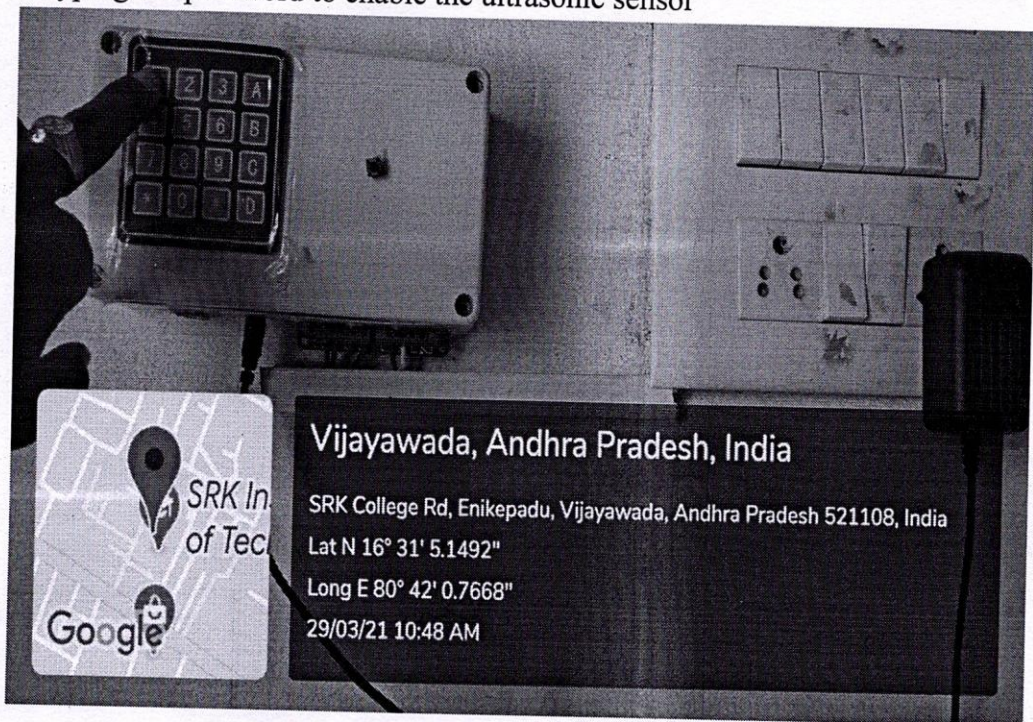
(c) User placing an obstacle before the ultrasonic sensor
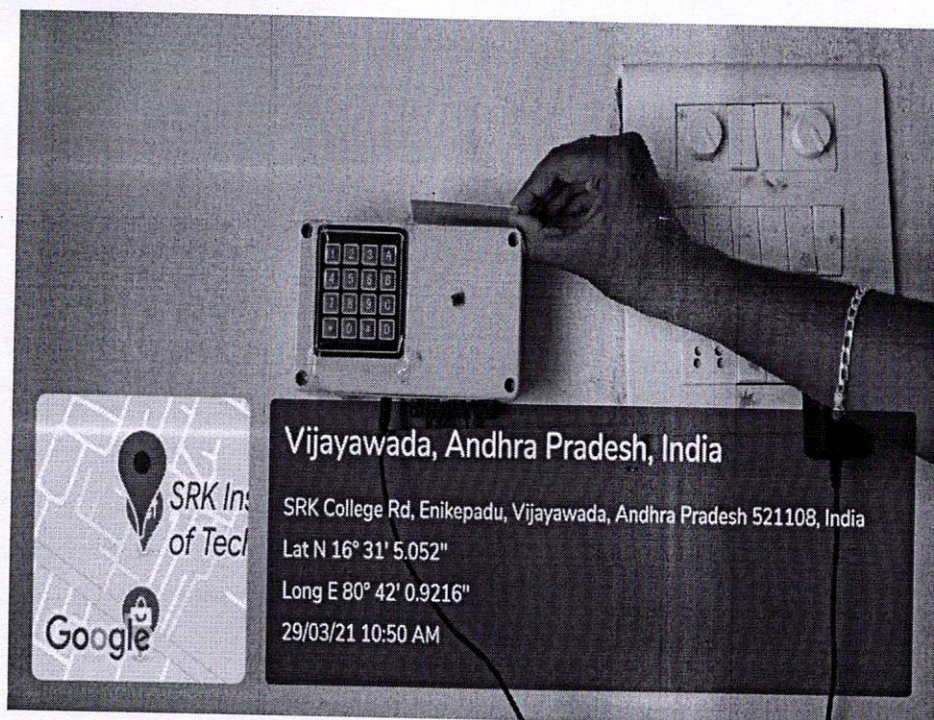
(d) Ultrasonic sensor upon detecting the obstacle turns ON fans and Light
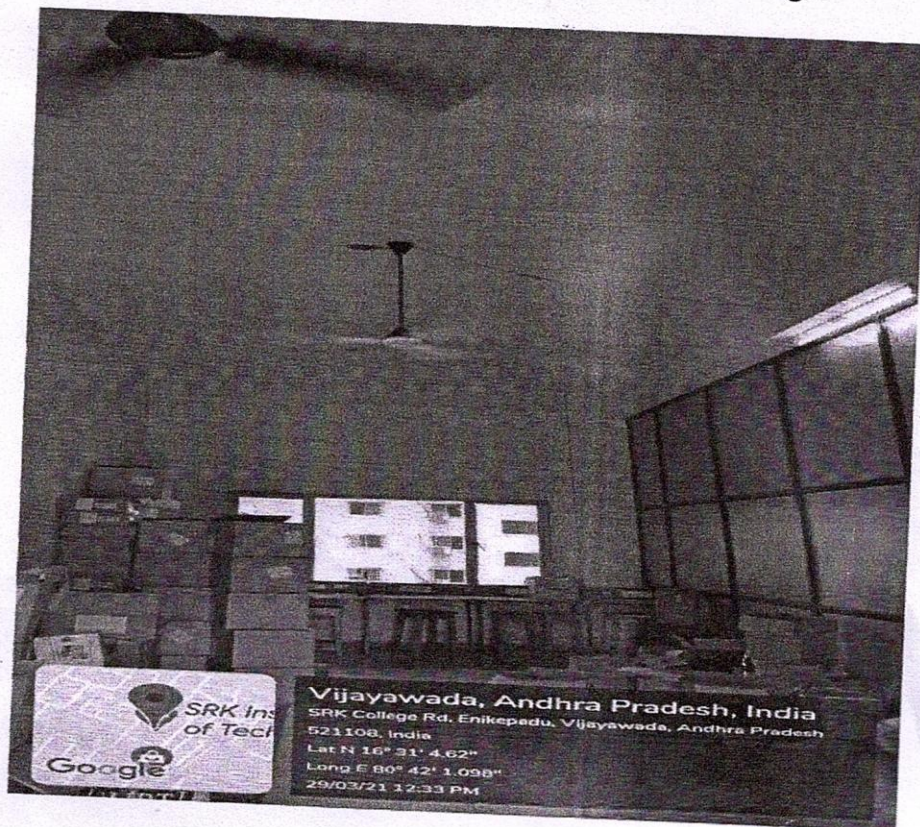
(e) Ultrasonic sensor does not detect the obstacle, it turns OFF fans and Light

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GST INVOICE
CASH BILL

" Sri Rajendra Gurubhyo Namah "

ASHISH ELECTRONIC CORPORATION

Shop No : 46, A.M.C. Complex, Governorpet, VIJAYAWADA - 2.

No. **684**   Date 08/02/21

Sri **SRK INSTITUTE OF TECH, VJA.**

UNI No ....

Description	HSN CODE	GST %	Qty	Rate	Amount
4x4 PCB			2	25	50
Sv l2ch			2	90	180
4x4 kypad			1	80	80
PIR			1	90	90
HCSR04			2	90	180
Jumperwire			20	1.50	30
F Bergstrip			1	10	10
					620
				CGST 9%	56
				SGST 9%	56
				G. TOTAL	732

Terms & Conditions :
1. Goods Once sold cannot be taken back
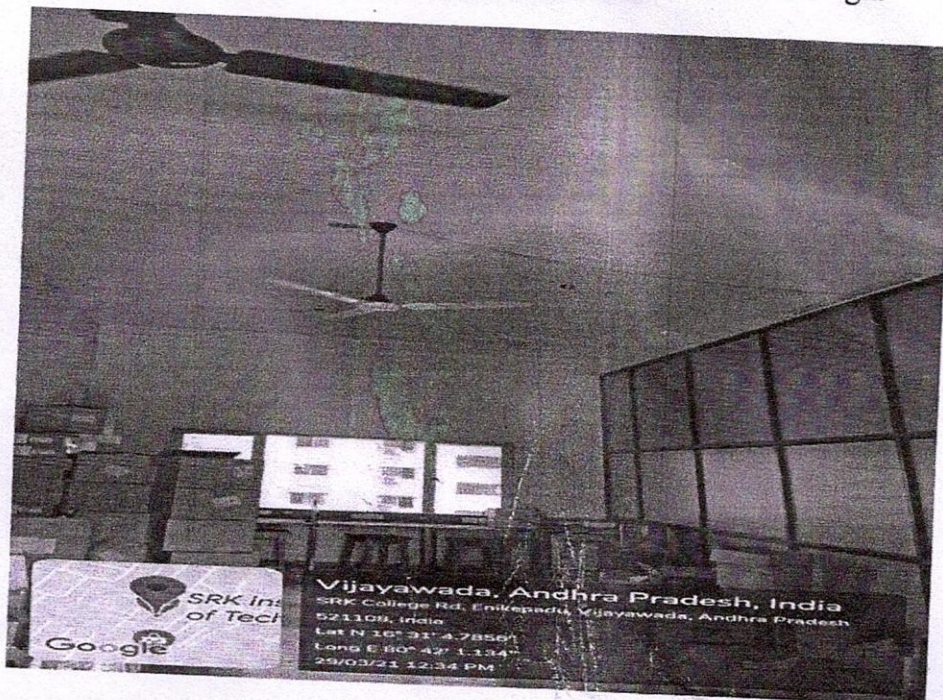2. All Disputes are subject to Vijayawada Jurisdiction.
3. Seller is Not Responsible for any Loss or Damaged of Goods in Transit.

Signature

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ENIKEPADU, VIJAYAWADA-521 108.

RECEIPT

Date : 27/2/21

SRC e-Solutions Private Limited

Mogalrajpuram, VIJAYAWADA. Cell : 9885096867

Name of the student ..... Tejesh siy [SYKIT]

College Name ..... S.Y.K Institute of Technology

Project ..... Electronic components

Rupees (in words) ..... 755/- Seven fifty five rupees only

Due yes/no Rs ..... Paid Rs 755

Phone No ..... email Id .....

S.Satger

Authorised Signature

Signature of Student

Item	Amount
Em-18 module	180
M-f wires	40
12V-1amp adapter	100
4×4 gb	25
2 female burgstrips	15
16×2 LCd	95
2 RFid tags	30
2+4 channel relays	270
	755/-

S. Sri Gow

HECE

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No. 7

RECEIPT

Date : 2/3/21

SRC e-Solutions Private Limited
Mogalrajpuram, VIJAYAWADA. Cell : 9885096867

Name of the student .... Thejesh ....

College Name .... S.R.K ....

Project .... cat board fitting of Project ....

Rupees (in words) .... 100/- ....

Due yes/no Rs.......................... Paid Rs. 100/-

Phone No........: ....email Id..........................

Authorised Signature

Signature of Student

PRINCIPAL
SRK Institute of Technology
ENIKEPADU, VIJAYAWADA-524 108.

No. 11

RECEIPT

Date : 7/3/21

SRC e-Solutions Private Limited
Mogalrajpuram, VIJAYAWADA. Cell : 9885096867

Name of the student .... Tejesh

College Name .... S.R.K

Project .... Components & fixing

Rupees (in words) 175

Due yes/no Rs .... Paid Rs 175

Phone No .... email Id ....

Authorised Signature

Signature of Student

PRINCIPAL
SRK Institute of Technology
ENIKEPADU, VIJAYAWADA-521 108,

No. 14   **RECEIPT**   Date : 17/3/21

SRC e-Solutions Private Limited
Mogalrajpuram, VIJAYAWADA. Cell : 9885096867

Name of the student .... S.RK

College Name .... SRK

Project .... Project Box fitting (2)

Rupees (in words) 1200/-

Due yes/no Rs. .... Paid Rs. 1200/-

Phone No. ...738 9177049049... email Id ....

Authorised Signature   Signature of Student

PRINCIPAL
SRK Institute of Technology
ENIKEPADU, VIJAYAWADA-521 108.

RECEIPT

Date : 2-3-03-202(

SRC e-Solutions Private Limited

Mogalrajpuram, VIJAYAWADA. Cell : 9885096867

Name of the student .... SRKIT Project

College Name .... SRKIT

Project .... Project

Rupees (in words) .... tweleve hundred fibty rupees (including component)

Due yes/no Rs .... — .... Paid Rs 1250./-

Phone No .... — .... email Id —

Authorised Signature .

Signature of Student

PRINCIPAL
SRK Institute of Technology
ENIKEPADU, VIJAYAWADA-521 108.