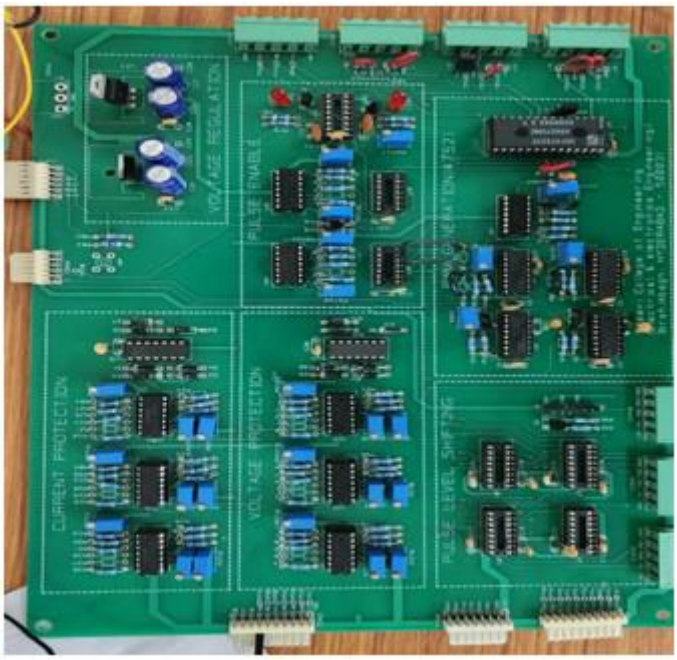
VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS),
IBRAHIMBAGH, HYDERABAD-31
DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

PRODUCT DEVELOPMENT BY EEE DEPARTMENT

Variable Frequency Drive

EEE Department has developed a prototype of Variable Frequency Drive for speed control of three phase induction motor with indigenous efforts. The prototype is being used by undergraduate students for conducting academic experiments and gaining first hand information of VFD. A control card for PWM signal generation using HEF 4752 IC, isolated sensing of voltages and currents, over voltage and over current protection, PWM signals blocking and de-blocking, protection relay and power contactor interface has been developed and used in the developed VFD.

Variable frequency drives (VFDs) are electronic devices that offer significant advantages over other speed control methods. VFDs provide precise control of motor speed and torque, making them more efficient and reduce wear and tear of the motor and other components. They are also versatile and can be used with a wide range of motor types and sizes, making them suitable for various applications. In addition, VFDs are energy-efficient and can vary the motor speed according to the load requirements, reducing energy consumption and lowering energy costs. Lastly, VFDs reduce mechanical stress and strain on the motor and associated equipment, thereby extending their lifespan and reducing maintenance costs. VFDs can be used in applications such as HVAC systems, conveyor belts, pumps, and industrial machinery, improving the efficiency and performance of the system. Variable speed AC drives are gaining popularity due to their energy efficiency and ability to get desired speed as per process requirements.


VOLTAGE REGULATION
PULSE ENABLE
CURRENT PROTECTION
VOLTAGE PROTECTION
PULSE LEVEL SHIFTING


SEMIKRON

In the EEE department Digital meters are developed for different electrical parameters measuring like voltage, current, power and speed. These meters can be used in different experiments for the accurate measurement of electrical parameters.

Digital Boxes – I

This box is used for measuring D.C Voltage, DC current and speed of DC motor.

This is useful for the following experiments.

1. Brake Test on DC Shunt Motor
2. Brake Test on DC Compound Motor
3. Brake Test on DC Series Motor
4. Speed control of DC Motor.

Phone : 040-23146002 (Direct)

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IBRAHIMBAGH, HYDERABAD – 500 031. (TS)
Web site: www.vce.ac.in, e-mail: principal@staff.vce.ac.in

Digital Boxes – II

This box is used to measure power and speed of AC motor.

This is useful for following experiments.

1. Brake test of 3-ϕ induction motor
2. Power factor improvement of 3-ϕ Induction motor.
3. Load test on Induction motor.

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Digital Boxes – III

This box is used to measuring power and speed of AC motor.

This is useful for following experiments.

1. Brake test on 1-ϕ induction motor.

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Digital Boxes – IV

This box is used for measuring AC voltage, AC current.

This is useful for following experiments.

1. Power factor improvement of 3-ϕ Induction motor.

2. Scott connection of transformers.

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Digital Boxes – V

This box is used for measuring AC voltage, AC current and DC current and speed of alternator.

This is useful for following experiments.

1. Voltage regulation of alternator by impedance method.
2. Voltage regulation of alternator by ZPF method.
3. Speed Control of 3-phase slip ring induction motor.

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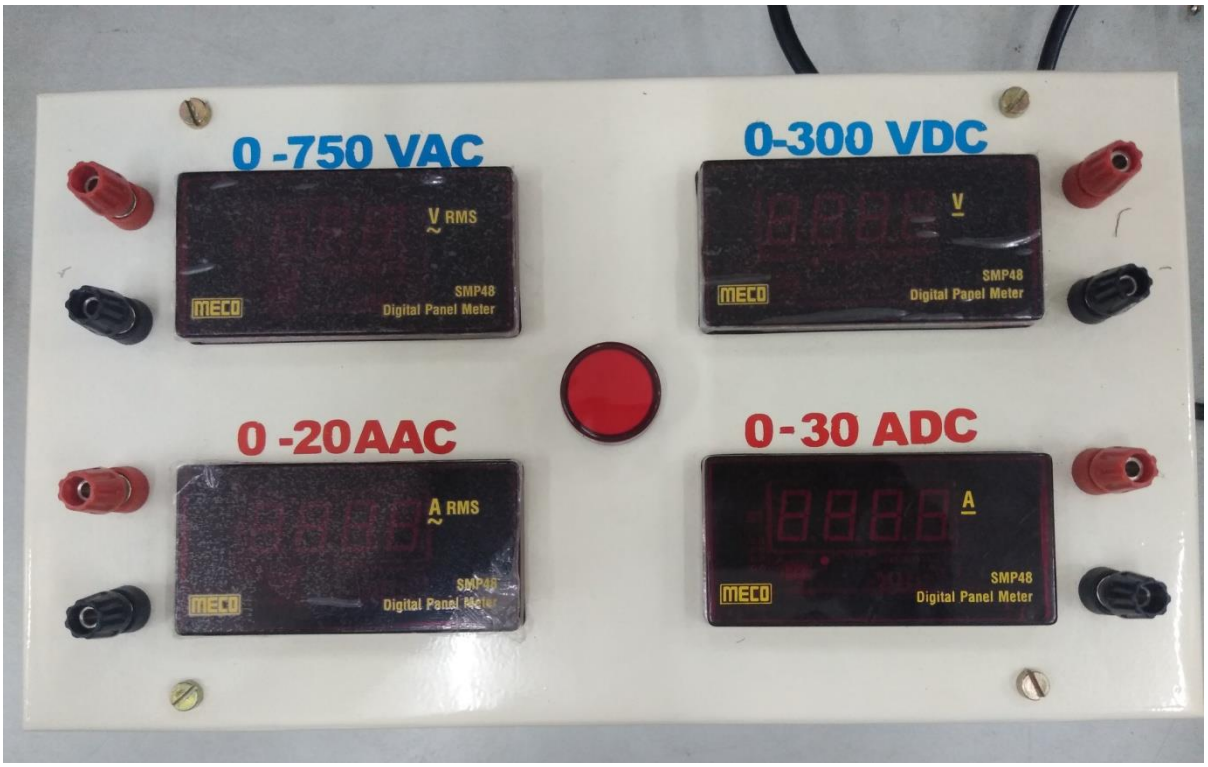
Digital Boxes – VI



This is useful for measuring AC Voltage DC Voltage AC Current and DC Current.

This is useful for following experiments.

1. Induction Generator

2. Voltage regulation of alternator

Voltage and Current Sensor Boxes:

For various projects require voltage and current data. To sense and able connect to the computer these voltage and current sensors are developed.

vasavi college of engineering
(autonomous) department
electrical and electronics
engineering

Desinged by
Chakravarthi.HOD-EEE

DC shunt motor control pannel

pendekanti venketa
subbaiah ITI
banaganapalle kurnool dist

Principal
S.Abdul Azeem

Electrical instructor
C.Subramanyam

vasavi college of engineering (autonomous) department of electrical and electronics engineering

Desinged by Dr.M. Chakravarthi. HOD- EEE

AC Squirrel cag motor control pannel

pendekanti venketa subbaiah ITI banaganapalle kurnool dist

principal

S.Abdul Azeem

Electrical instructor C. Subramanyam

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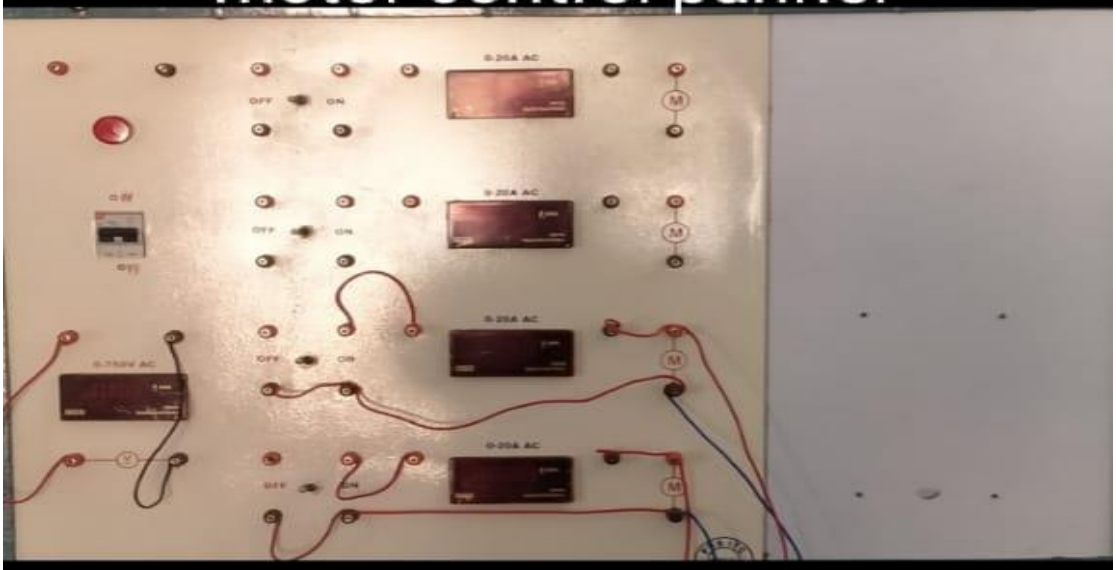
engineering (autonomous)
department of electrical
and electronics engineering

Desinged by

Dr.M.Chakravarthi. HOD-EEE

AC single phase series,and
capacitor motor and
universal, shaded ploe
motor control pannel



pendekanti venketa
subbaiah ITI
banaganapalle kurnool dist

Principal

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Electrical instructor

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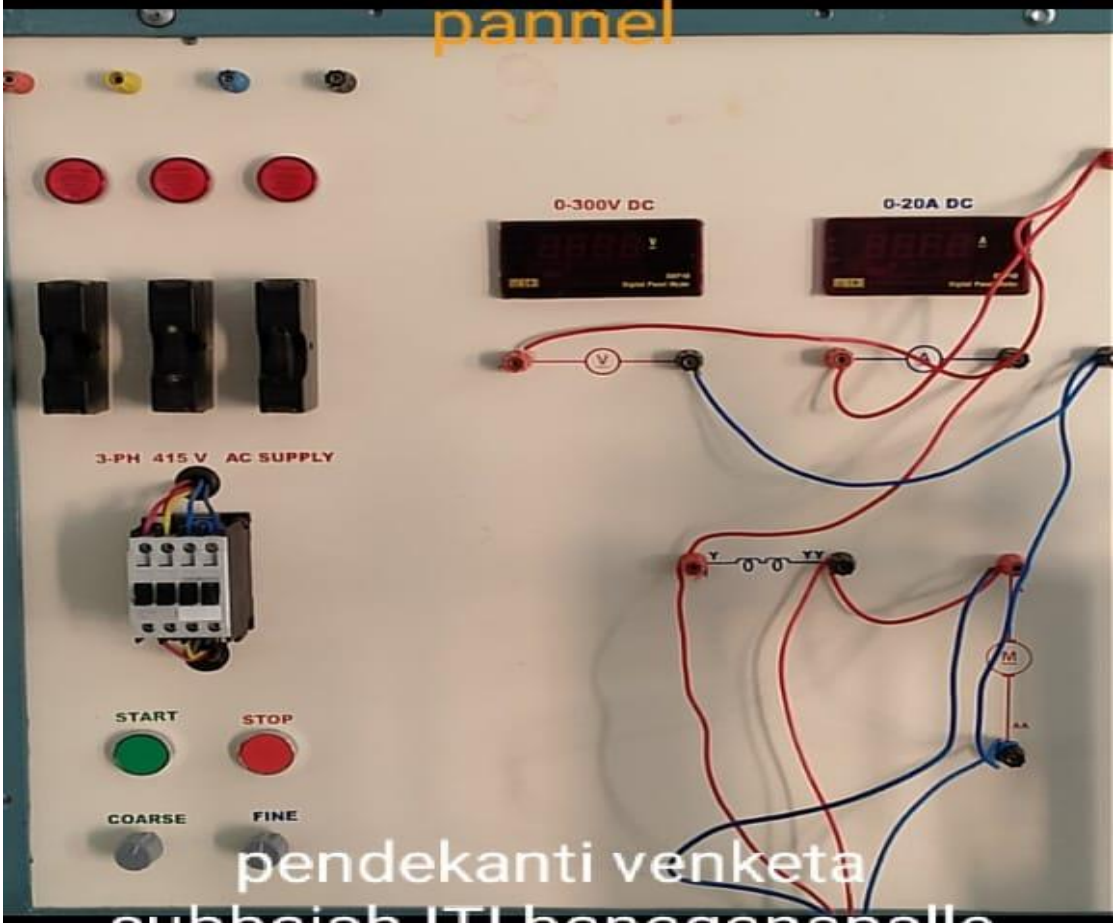
DC Series motor control pannel



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principal

S. Abdul Azeem

Electrical instructor C. Subramanyam

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department of electrical and electronics engineering
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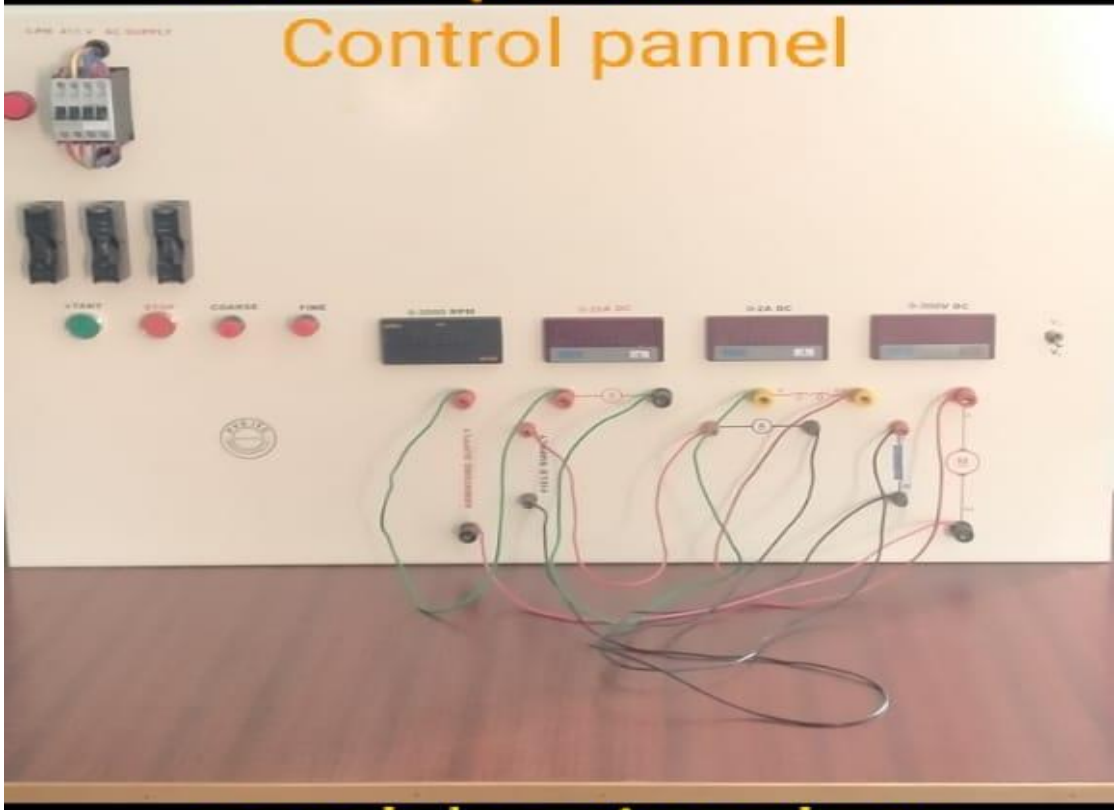
DC compound motor
Control pannel



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banaganapalle kurnool dist
principal
S.Abdul Azeem
Electrical instructor
C.Subramanyam

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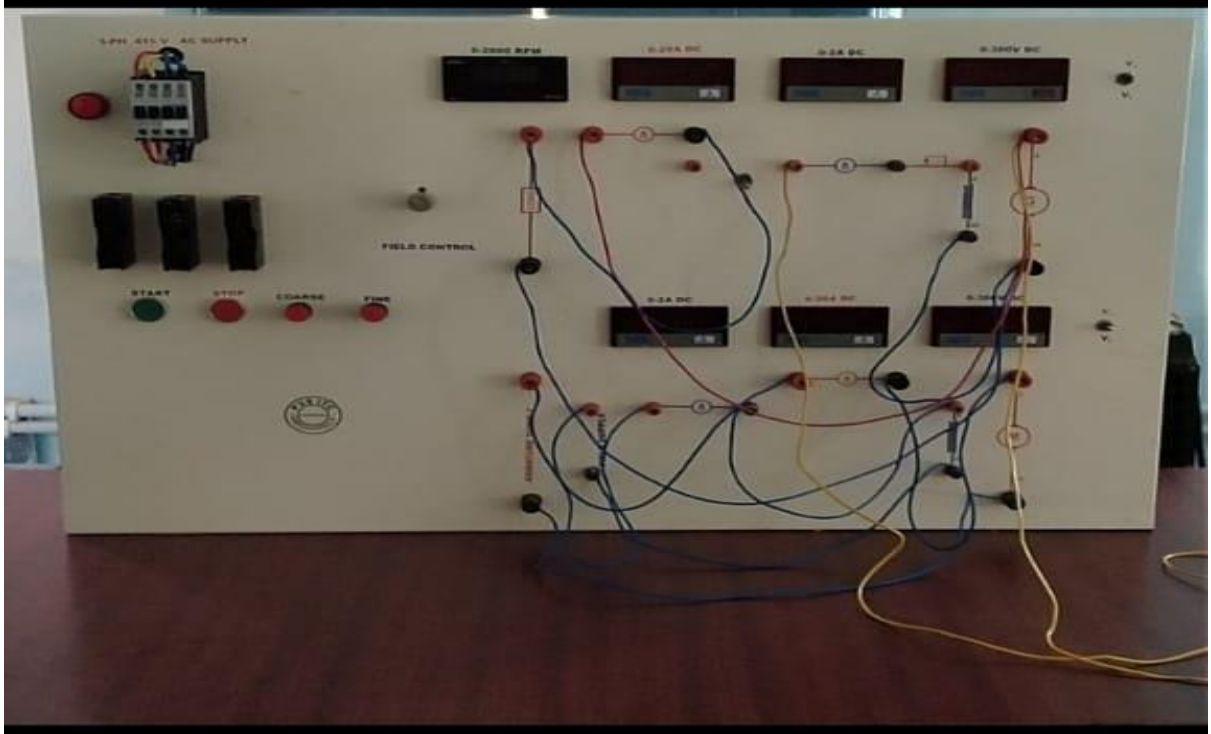
Desinged by Dr. M. chakravarthi
HOD EEE

DC shunt generator control pannel



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principal

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C.subramanyam

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DC Compound generator control pannel

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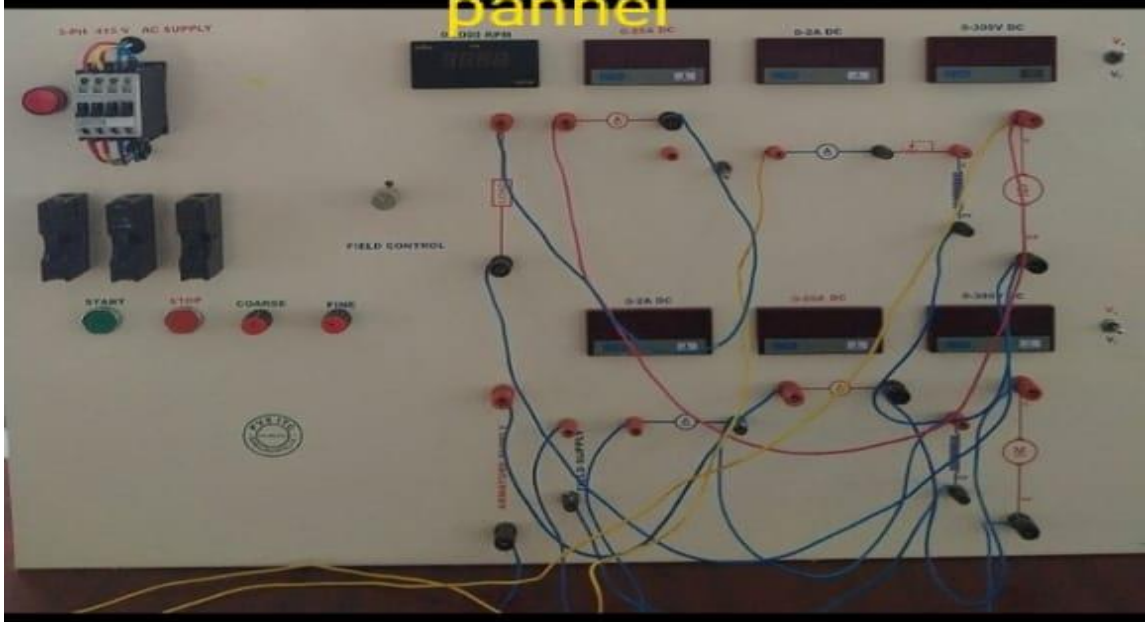
DC shunt generator control pannel



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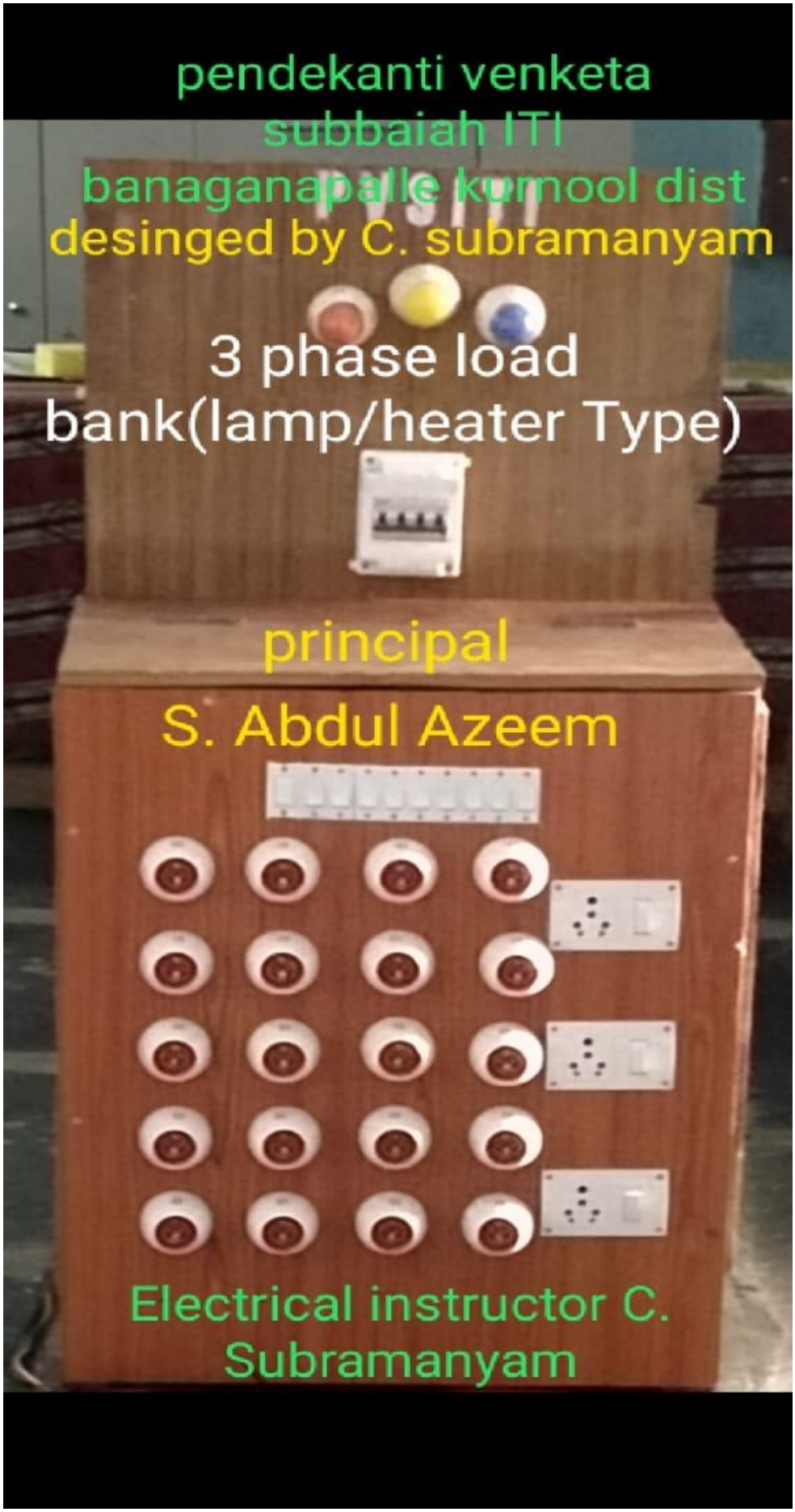
principal

S.Abdul Azeem

Electrical Instructor

C. Subramanyam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subbaiah ITI
banaganapalle kurnool dist
desinged by C. subramanyam
3 phase load
bank(lamp/heater Type)
principal
S. Abdul Azeem
Electrical instructor C.
Subramanyam

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Desinged by Dr.M. Chakravarthi.HOD- EEE

Motor Generator Set (DC to AC) Control pannel

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Principal

S.Abdul Azeem

Electrical instructor C. Subramanyam

vasavi college of engineering (autonomous) department of electrical and electronics engineering

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AC Slip ring motor control pannel

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principal

S.Abdul Azeem

Electrical instructor

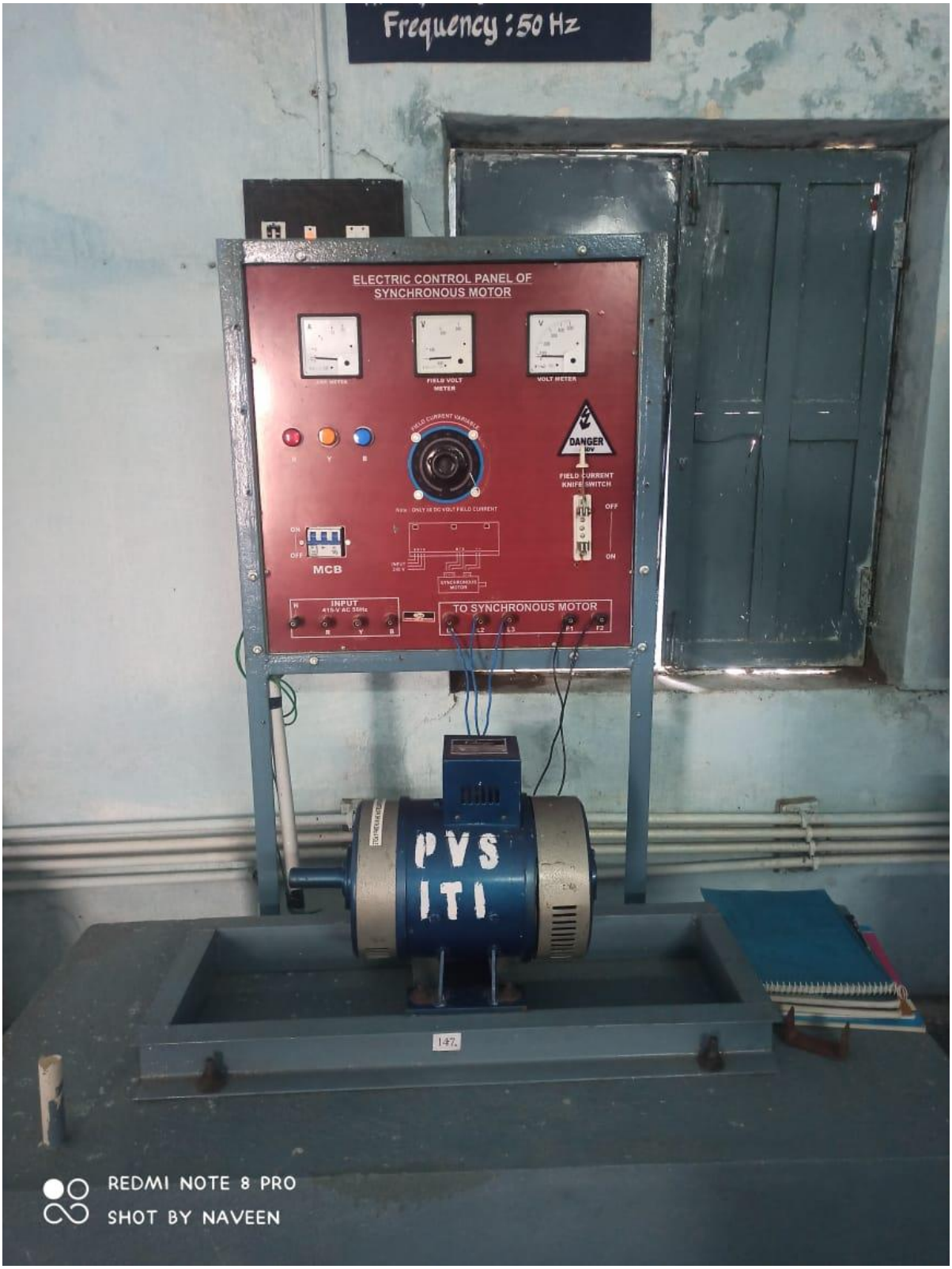
C. Subramanyam


151
3-ϕ Transformer
Rating: 3 KVA
137
DC Shunt Generator
Rating: 2.5KW
Voltage: 220v
3-PH 415 V AC SUPPLY
FIELD CONTROL
START
STOP
COARSE
FINE
REDMI NOTE 8 PRO
SHOT BY NAVEEN


144
AC Squirrel Cage Motor
HP:5 Phase:3
Voltage: 415 V
Frequency: 50 Hz
REDMI NOTE 8 PRO
SHOT BY NAVEEN


141
DC Shunt Motor
Rating : 2.5 KW
Voltage : 220V
142
DC compound
3-PH 415 V AC SUPPLY
START
STOP
COARSE
FINE
0-2000 RPM
0-2A DC
0-300V DC
REDMI NOTE 8 PRO
SHOT BY NAVEEN


139
DC compound Generator
Rating: 2.5 KW
Voltage : 220V
FIELD CONTROL
START
STOP
COARSE
FINE
REDMI NOTE 8 PRO
SHOT BY NAVEEN


Frequency : 50 Hz
ELECTRIC CONTROL PANEL OF
SYNCHRONOUS MOTOR
FIELD VOLT METER
VOLT METER
DANGER
FIELD CURRENT KNIFE SWITCH
MCB
INPUT
TO SYNCHRONOUS MOTOR
PVS
ITI
147
REDMI NOTE 8 PRO
SHOT BY NAVEEN


145
AC Slip ring motor
HP:5 Phase:3
Voltage:440V
Frequency:50 Hz
PVSITI
REDMI NOTE 8 PRO
SHOT BY NAVEEN


143
Motor Generator Set (dc to Ac)
Dc Shunt Motor
HP: 5
Voltage: 440V
AC Generator
Phase: 3
Rating: 3.5KVA
Voltage: 440/230V
Power factor: 0.8
Frequency: 50HZ
AC Squir
HP: 5
Vo
Fre
FIELD CONTROL
START
STOP
REDMI NOTE 8 PRO
SHOT BY NAVEEN


142
DC Compound Motor
Rating: 2.5 KW
Voltage: 220V
143
Motor Generator Set (DC
DC Shunt Motor
HP: 5
Voltage: 440V
AC Generator
Phase: 3
Rating: 3.5
Frequency: 50
3 PH 415 V AC SUPPLY
START
STOP
COARSE
FINE
ARMATURE SUPPLY
FIELD SUPPLY
REDMI NOTE 8 PRO
SHOT BY NAVEEN


140
DC Series Motor
Rating: 2.5KW
Voltage: 220V
0-300V DC
0-25A DC
3-PH 415 V AC SUPPLY
START
STOP
COARSE
FINE
PVS
ITI
140
REDMI NOTE 8 PRO
SHOT BY NAVEEN


ELECTRIC CONTROL PANEL OF
THYRISTER DC IGBT
DANGER
THYRISTER D.C DRIVE
MCB
TO DC SHUNT MOTOR
ECHO
ELECTRIC CONTROL PANEL OF
THYRISTER AC IGBT
VVVF CONTROLLER
DANGER
MCB
TO AC MOTOR
PVS
REDMI NOTE 8 PRO
SHOT BY NAVEEN