

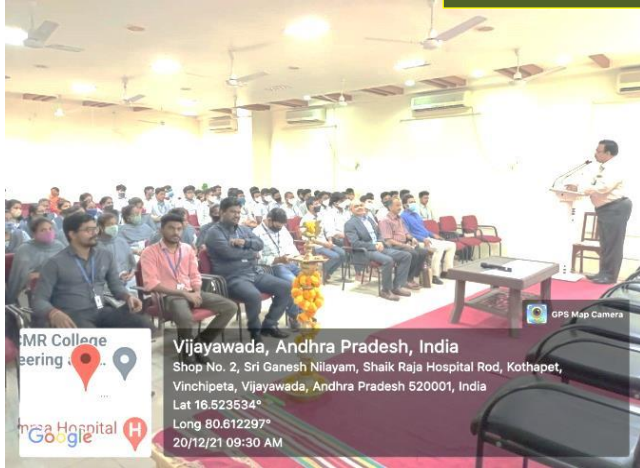
THREE-DAY WORKSHOP ON 'IOT WITH RASPBERRY PI'

(Under Autonomous Funds)

20th – 22nd December, 2021

Organized by: Department of Physics & Electronics

Inaugural Session – 20.12.2021



Inviting the Guests by Sri J. Panduranga Rao, Lecturer in Physics

Lighting the Lamp by Resource Person



Talk by Mr. K. Kalyan Kumar, Project Engineer Pantech e-Learning Pvt. Ltd. Hyd

Mr. B. Ramanjaneyulu, Project Engineer Pantech e-Learning Pvt. Ltd. Hyd, addressing the gathering



Theme of the Workshop by Sri R. Uday Kumar, Convenor & Incharge, Dept. of Electronics

Workshop Day – II – 21.12.2021



Resource Persons demonstrated to students about Interfacing of Ultrasonic Sensor to Raspberry PI



Workshop Day – III – 22.12.2021



Students with Resource Person at the Practical Session





Physics Department Staff members, Resource Persons with Student Participants of Workshop

VALEDICTORY



Felicitation to Resource Persons by Principal Dr. V. Narayana Rao



Felicitation to Mr. K. Kalyan Kumar by Department Members

Felicitation to Mr. B. Ramanjaneyulu by Department Members



THREE-DAY WORKSHOP ON 'IOT WITH RASPBERRY PI'

(Under Autonomous Funds)

20th – 22nd December, 2021

Organized by: Department of Physics & Electronics

REPORT

The Department of Physics and Electronics always strives for the benefit of the students through arranging quality programs like science academy workshops for physics students and industry academia workshops for electronics students. In the previous years, two workshops were arranged with Yagnamayaya tech suite for enhancing technical skills of the students. As our college is providing advanced knowledge by introducing new and updated subjects. Even though, they learn a limited subject because of stipulated scheduled. Limited experiments are given in syllabus. This knowledge may not be sufficient to stand them in reputed position at their jobs.

Raspberry Pi is able to provide an internet gateway as it has a quad-core ARM Cortex A7 CPU with a frequency of 900 MHz and 1 GB LPDDR2 SDRAM. It can be made to function as the Internet Gateway Device. Incorporating an RPi with other off-the-shelf sensors can make an IoT project a much easier task. As the internet of things requires a microcontroller to process the data, Wi-Fi integration to convey that data to the cloud and actuators to control operations, many innovative minds globally choose Raspberry Pi for developing IoT projects.

A workshop is always meant for updating the students' knowledge theoretically as well as practically. Hence a three day work shop on "IoT with Raspberry Pi" with six technical sessions in association with Pantech e-Learning Pvt. Ltd as it is one of the best institute and strong enough to update students to high extent.

Six technical sessions were arranged in this work shop. Each day is divided into 1 sessions. On first day, first session is about a brief history IoT and its wide applications.

In the second session a brief introduction about raspberry Pi and python and their installation. Raspberry Pi coding was explained in the next two sessions. A separate session was given to introduction of pan in Raspberry Pi. The last session was completely the interaction session for cleaning queries of participants.

Interfacing of sensors was given priority on first two sessions of second day. HTTP protocol and package installation was give importance in next two sessions. Before interaction session, the resource persons trained the participants in making project based on home security system.

A detailed explanation was given for APACHE server in first session of third day. Second and third sessions were allotted to host webpages. In next two sessions were given importance MQTT protocol followed by interaction session.

The participants were made confident in making projects based on raspberry Pi. I hope that they are confident enough to prepare a project at their own.

Day-1

WORKSHOP ON IOT WITH RASPBERRY PI

DAY-1		
Session	Time	Class Topics
I	9.30- 10.30	INTRODUCTION TO IOT <ul style="list-style-type: none">• HISTORY OF IOT OVERVIEW• APPLICATIONS
II	10.30-11.30	INTRODUCTION TO RASPBERRY PI <ul style="list-style-type: none">• RASPBERRY PI ARCHITECTURE• PROCEDURE TO INSTALL OS IN RASPBERRYPI INTRODUCTION TO PYTHON <ul style="list-style-type: none">• PYTHON BASICS• PYTHON INSTALLATION
	11.30-11.45	Break
III	11.45-1.00	ASPBERRY PI HANDS ON TRAINING <ul style="list-style-type: none">• CONNECTING RASPBERRY PI TO MONITOR• INTRODUCTION TO RASPBERRY PI CODING
	1.00-2.00	Lunch Break
IV	2.00-3.30	BASIC CODING <ul style="list-style-type: none">• LED BLINKING• BUZZER• INTEREPTS• SWITCH
V	3.00-04.15	INTRODUCTION TO PWM IN RASPBERRY PI <ul style="list-style-type: none">• APLPLICATIONS OF PWM IN EMBEDDED SYSTEM• VARYING LED BRIGHTNESS USING PWM• FADING LED BRIGHTNESS USING PWM
	04.15-4.30	<ul style="list-style-type: none">• QUESTION & ANSWER SESSIONS

Day-II

DAY-2		
Session	Time	Class Topics
I	9.30- 10.00	INTERFACING IR SENSORS WITH RASPBERRY PI <ul style="list-style-type: none">• INTRODUCTION IR SENSOR• HANDS ON IR SENSOR
II	10.30-11.30	INTERFACING ULTRASONIC SENSORS WITH RASPBERRY PI INTRODUCTION ULTRASONIC SENSOR HANDS ON ULTRASONIC SENSOR
	11.30-11.45	break
III	11.45-1.00	USING OF HTTP PROTOCOL <ul style="list-style-type: none">• UPDATING THE SENSOR(GAS, FIRE, IR) DATA TO CLOUD
	1.00-2.00	Lunch Break
IV	2.00-2.30	PACKAGE INSTALLATION ON RASPBERRY PI <ul style="list-style-type: none">• NUMPY PACKAGE
V	2.30-04.15	PROJECT <ul style="list-style-type: none">• HOME SECURITY SYSTEM
	04.15-4.30	<ul style="list-style-type: none">• QUESTION & ANSWER SESSIONS

Day-III

Session	Time	Class Topics
I	9.30- 10.30	INTRODUCTION TO APACHE SERVER <ul style="list-style-type: none">• INSTALLING APACHE SERVER AND PHP IN RASPBERRY PI• INTRODUCTION TO WIRINGPI AND ITS FUNCTION
II	10.30-11.30	LOCAL HOST WEBPAGES <ul style="list-style-type: none">• CREATING A LOCAL HOST WEBPAGE IN RASPBERRY PI• RUNING THE PHP PAGE IN BROWSER
	11.30-11.45	Break
III	11.45-1.00	ASPBERRY PI HANDS ON TRAINING <ul style="list-style-type: none">• BUILDING A WEBPAGE TO CONTROL GPIO PINS IN RASPBERRY PI• BUILDING A WEBPAGE TO DISPLAY ULTRASONIC VALUES IN RASPBERRY PI
	1.00-2.00	Lunch Break
IV	2.00-3.30	INTRODUCTION TO MQTT PROTOCOL <ul style="list-style-type: none">• WHAT IS MQTT PROTOCOL AND ITS ADVANTAGES• DIFFERENT BROKERS IN MQTT• SENDING AND RECEIVING DATA USING MQTT
V	3.00-04.15	PPLICATION OF MQTT <ul style="list-style-type: none">• BUILDING A HOME CONTROL DEVICE USING MQTT WITH RASPBERRY PI
	04.15-4.30	<ul style="list-style-type: none">• QUESTION & ANSWER SESSIONS

BROCHURE



ISO 9001:2015

NAAC 'A' Grade Cycle 3

K.B.N. COLLEGE (AUTONOMOUS)

Sponsored by S.K.P.V.V. Hindu High Schools' Committee, Kothapeta, Vijayawada - 520001.
A College with Potential for Excellence (CPE) All India 92nd Rank in NIRF by MHRD (2017)

THREE-DAY WORKSHOP ON 'IOT WITH RASPBERRY PI'

(Under Autonomous Funds)

Resource Persons

Mr. K. Kalyan Kumar

Mr. B. Ramanjaneyulu

Pantech e-Learning Pvt. Ltd., Hyderabad

20-22 December,
2021



Organized by: **Department of Physics & Electronics**

In association with

Pantech e-Learning Pvt. Ltd., Hyderabad

About the College:

Kakaraparti Bhavanarayana College is a vivacious outcome of a century old renowned charitable organization, S.K.P.V.V. Hindu High Schools Society with "Tejaswina Vadheethamasthu" as its motto. Since its inception in 1965, it marked an epoch in innovative education, in an academically and economically impoverished area. The college with heightened social imagination and ardent zeal, shone like a lodestar led innumerable students towards the goal of an illustrious life. The ever vibrant college grew by leaps and bounds and has evolved with times. It has been adorned with the Autonomous status by the UGC in the year 2010, and received "Best Laboratory", "Best Academic Achievement", "Best Library", "Best NSS Unit" awards. The College has never rested on its laurels and has been relentlessly raising the bar. It is certified with ISO 9001-2015 which has been given for Quality Management Standard and accorded with CPE in 2016 by UGC. It has been reaccredited with "A" Grade by NAAC in 2019.

About the Department:

The Department of Physics, KBN College, Vijayawada was established in the 1965. It has a great reputation and distinction of producing many scholars, Administrators, Scientists, Physicists mathematicians, chemists and other illustrious personalities in various fields. The Department is having the pride possession of some rare and exclusive instruments. One such instrument is Astronomical Telescope to observe celestial bodies. Another notable instrument is a working model of the Super Heterodyne Radio receiver which is used to have a clear view of the electronic components. The Department has been declared as a Model Department by the Andhra University.

The year 2003 happens to be a landmark in the history department when the course B.Sc Electronics was started. The students of Electronics exhibit their prowess in many live projects every year especially during the National Science Day celebrations.

About the Workshop:

Raspberry Pi is able to provide an internet gateway as it has a quad-core ARM Cortex A7 CPU with a frequency of 900 MHz and 1 GB LPDDR2 SDRAM. It can be made to function as the Internet Gateway Device. Incorporating an RPi with other off-the-shelf sensors can make an IoT Project a much easier task. As the internet of things requires a microcontroller to process the data, Wi-Fi integration to convey that data to the cloud and actuators to control operations, many innovative minds globally choose Raspberry Pi for developing IoT projects. So, we made an effort to provide additional skills through the workshop.

Sub-Themes:

- Introduction to Raspberry Pi & Python
- Interfacing Ultrasonic Sensors with Raspberry Pi
- HTTP Protocol
- Introduction to APACHE Server
- Introduction to MQTT Protocol
- Project

CHIEF PATRON

Sri Tunuguntla Srinivasu

Secretary & Correspondent, KBN College

PATRON

Dr. V. Narayana Rao

Principal

CONVENOR

Sri R. Uday Kumar

Incharge, Dept. of Electronics

ADVISORY COMMITTEE

Sri P. L. Ramesh, Vice-Principal

Sri Vijayababu Tekkem, Vice-Principal

Dr. G. Krishnaveni, Head, Dept. of Chemistry & IQAC Coordinator

Sri P. Ravindra, Head, Dept. of Computers

Smt. M.L. Prasanna, Head, Dept. of Mathematics & Statistics

ORGANIZING COMMITTEE

Sri Ch. Nagabhushanam, Head, Dept. of Physics & Electronics

Sri J. Panduranga Rao, Lecturer, Dept. of Physics

Sri P. Vishnu Vardhan, Lecturer, Dept. of Electronics

Ms. D. Hema, Lecturer, Dept. of Electronics

Ms. B. Sruthi, Lecturer, Dept. of Electronics

Sri S. Harinadh Babu, Lecturer, Dept. of Physics

Smt. G. Jwala Purnima, Lecturer, Dept. of Physics

INVITATION

ISO 9001:2015

NAAC 'A' GRADE CYCLE 3

K.B.N. COLLEGE (AUTONOMOUS)

Sponsored by S.K.P.V.V. Hindu High Schools' Committee
Kothapeta, Vijayawada - 520 001

A College with Potential for Excellence (CPE)

All India 92nd Rank in NIRF by MHRD (2017)



Invitation

 Pantech e Learning
DIGITAL LEARNING SIMPLIFIED

Department of Physics & Electronics

Cordially invites you to the

THREE-DAY WORKSHOP ON

'IOT WITH RASPBERRY PI'

(20th-22nd December, 2021)

20th December, 2021 @ 09:00 A.M.

Venue: Vivekananda Seminar Hall

Resource Persons

Mr. K. Kalyan Kumar

Project Engineer,
Pantech e-Learning Pvt. Ltd., Hyderabad

Mr. B. Ramanjaneyulu

Project Engineer,
Pantech e-Learning Pvt. Ltd., Hyderabad

Presided by

Dr. V. Narayana Rao
Principal, KBN College



KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

(Sponsored by S.K.P.V.V. Hindu High Schools' Committee)

Kothapeta, Vijayawada – 520 001.

A College with Potential for Excellence (CPE)

All India 92nd Rank in NIRF by MHRD

Three-Day Workshop on **'IOT WITH RASPBERRY PI'** PROGRAMME SHEET - INAUGURAL SESSION - 20TH DECEMBER, 2021 @ 9.00 A.M

Inviting the Guests	:	Sri J. Panduranga Rao Lecturer in Physics
Prayer Song	:	Ms. Vyshnavi II B.Sc. (IoT) Student
Jyothi Prajwalana	:	Dignitaries on the dais
President's Opening Remarks	:	Dr.V.Narayana Rao Principal, K.B.N. College
Theme of the Workshop	:	Sri R. Uday Kumar In-Charge, Dept. of Electronics
Speeches by	:	1. Sri T. Seshaiiah President, K.B.N College Committee 2. Sri T. Srinivasu Secretary & Correspondent, K.B.N. College Committee 3. Sri P.L. Ramesh Vice-Principal 4. Sri Vijayababu Tekkem Vice-Principal
Introduction of the Resource Person	:	Ms. B. Sruthi Lecturer in Electronics
Speech by the Resource Person	:	Sri K. Kalyan Kumar Project Engineer, Pantech e-Learning Pvt.Ltd.,
Introduction of the Resource Person	:	Mr. S. Harinadh Babu Lecturer in Physics
Speech by the Resource Person	:	Sri B. Ramanjaneyulu Project Engineer, Pantech e-Learning Pvt.Ltd.,
Vote of thanks	:	Sri Ch. Nagabhushanam Head, Dept. of Physics & Electronics



ISO 9001:2015

NAAC 'A' GRADE CYCLE 3

KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

(Sponsored by S.K.P.V.V. Hindu High Schools' Committee)

Kothapeta, Vijayawada – 520 001.

A College with Potential for Excellence (CPE)

All India 92nd Rank in NIRF by MHRD

Three-Day Workshop on 'IOT WITH RASPBERRY PI'

PROGRAMME SHEET - VALEDICTORY SESSION - 22nd DECEMBER, 2021 @ 4.30 P.M

Inviting the Guests	:	Sri J. Panduranga Rao Lecturer in Physics
President's Opening Remarks	:	Dr.V.Narayana Rao Principal, K.B.N. College
Brief Report of the Workshop	:	Sri R. Uday Kumar Incharge, Dept. of Electronics
Speeches by College Committee	:	1. Sri T. Sessaiah President, K.B.N 2. Sri T. Srinivasu Secretary & Correspondent, K.B.N. College Committee 3. Sri P.L. Ramesh Vice-Principal 4. Sri Vijayababu Tekkem Vice-Principal
Speech by the Resource Persons	:	Sri K. Kalyan Kumar Project Engineer, Pantech e-Learning Pvt.Ltd., Sri B. Ramanjaneyulu Project Engineer, Pantech e-Learning Pvt.Ltd.,
Distribution of Certificates	:	Principal & other dignitaries
Feedback	:	From Participants
Felicitation to the Resource Persons	:	Dignitaries on the Dias
Vote of thanks	:	Sri S. Harinadh Babu Lecturer in Physics

*****National Anthem*****

CERTIFICATE



ISO 9001:2015 NAAC 'A' GRADE CYCLE 3
KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

Sponsored by S.K.P.V.V. Hindu High Schools' Committee
Kothapeta, Vijayawada - 520 001

A College with Potential for Excellence (CPE) All India 92nd Rank in NIRF by MHRD (2017)



THREE-DAY WORKSHOP ON
'IOT WITH RASPBERRY PI'
Certificate of Participation



This is to certify that Mr./Ms. _____ of

_____ *K.B.N. College has participated in Three-Day Workshop on 'IOT WITH RASPBERRY PI'.*

A Skill Development Programme organized by Department of Physics & Electronics, K.B.N. College (Autonomous),

in association with Pantech e-Learning Pvt. Ltd, from 20th to 22nd December, 2021.

Convenor

Manager
Pantech e-Learning Pvt.Ltd,

Principal
K.B.N. College