

**GTU
SPONSORED
STTP IN
ASSOCIATION
WITH V.V.P.
ENGINEERING
COLLEGE,
RAJKOT**

**COMPUTER ENGINEERING AND
ELECTRONICS AND COMMUNICATION
ENGINEERING DEPARTMENT
ORGANIZES ISTE APPROVED STTP
ON “IoT & MYCROPYTHON”
DURING 30TH OCT’17 TO 4TH NOV’17**



GTU



VVPEC



V.V.P. Engineering College, Rajkot
Computer Engineering and Electronics and Communication Engineering Department
Organizes
STTP (GTU sponsored and ISTE approved) on
“IoT and MicroPython”
during 30th October 2017 to 4th November 2017.

About STTP – “IoT & MycroPython”:

IoT is the area where computer engineers and electronics and communication engineers work together to make the system smart. The topic of STTP was chosen in such a way that the CE and EC staff members can work on same platform and so the obvious choice was IoT.

The STTP is

- To provide the knowledge on IoT from an overview to in depth hands-on for designing IoT based application/small project.
- To make participants familiar and proficient with the hardware and software used to make IoT based application.
- To enhance the practical skills of participants by giving hands-on sessions to them which helps them make capable of guiding the quality projects to their students.

Organizers:

Patron	Dr. Jayesh Deshkar (Principal)
Conveners	Dr. Tejas Patalia (HOD CE) Dr. Charmy Patel (HOD EC)
Co- Conveners	Dr. Paresh Dholakiya (Associate Professor) Prof. Jignesh Joshi (Asst. Prof. EC dept.) Prof. Kamal Sutariya (Asst. Prof. CE dept.)

Technical Experts :

- Key Note Speaker - Dr. C.H. Vithalani (HOD EC, GEC , Rajkot)
- Technical Expert 1 Prof. Jignesh Patoliya (CHARUSAT)
- Technical Expert 2 Mr. Ashutosh Bhatt (e-Infochips, Abad)

Day 1 | 30th October 2017 :

Inauguration Function:

The STTP was inaugurated with Prayer, Deep Pragatya followed by speech of conveners and co-conveners to welcome and introduce Experts and Participants.



Dias : Conveners and Experts : From left Convener Dr. T.P. Patalia (HOD CE, vvpec), Prof. Jignesh Patoliya (Asst. Prof. CHARUSAT - Expert Day 1/2/3), Key Note Speaker Dr. C.H. Vithalani (HOC EC, GEC, Rajkot), Dr. C.R. Patel (HOD EC, vvpec)



About STTP
by Prof. J.H. Joshi



Introduction to Experts
by Dr. P.M. Dholakiya



Vote of Thanks
by Prof. K.K. Sutariya

Participants : Total 53 participants – (04 industry person, 13 staff members from other colleges, 07 students from other colleges, 16 V.V.P. staff members and 13 V.V.P. students)

Key Note Session: Marriage between Computer Engineering and Electronics and Communication Engineering!!!

By Dr. C.H. Vithalani (HOD EC, GEC, Rajkot – Participant too)

Expert : Dr C H Vithlani is at present Professor and HOD (Electronics and Communication Engineering) at GEC, Rajkot. He has more than 20 years of teaching experience. He has published many papers in reputed national and international journals. He has guided more than 8 PhD students. He has Co-ordinated AICTE-ISTE Short term training programs and seminars. He has given services as an Assistant Project Officer in Community Polytechnic Wing during October-1999 to March-2002. Sir has also conducted various training programs as a Continuing Education Manager under Canada India Industry Institute Linkage Project. He had delivered Expert lectures/Guest lectures in various events. He has attended technical and non-technical training programs, conference and advisory committee meetings. He has worked as TEQIP Coordinator. His area of research in embedded systems, DSP, Image Processing and Wireless Communication.

In the session Dr. C.H. Vithalani sir motivated all participants and advised them to participate in at least one workshop or STTP every year. He is having such practice from long time. In his session he covers IoT Architecture, brief about protocols used in IoT and application of IoT. In his presentation there was good statistical data on IoT forecasting and based on that he put expectations from IoT with Challenges of IoT (Research opportunities) for all the participants.





Facilitating Dr. C.H. Vithalani with Memento and as a key note certification and one of participate of out STTP by Dr. Jayesh Deshkar (Patron) by Co-Convener Dr. P.M. Dholakiya

Day 1 | 30th October 2017 :

- ✓ **Interaction of embedded systems with the physical world**
- ✓ **IoT Architecture, Getting familiar with IoT Devices & Sensors**
- ✓ **Basic Python Programming**
- ✓ **Getting started with MicroPython**
- ✓ **Firmware Installation in NodeMCU**



Prof. Jignesh Patoliya
Asst. Prof. EC dept.,
(CHARUSAT)

Expert: Prof. Jignesh Patoliya is pursuing his PhD in area of Embedded Systems & IoT. He is presently serving as an Assistant Professor in the department of EC engineering at the Charotar University of Science and Technology Changa since Jan. 2009. He has conducted more than 65 workshops in the area of Microcontrollers, ARM, Arduino, VLSI design, PCB design, Embedded C, Arduino C, Python programming, Visual Programming, Raspberry Pi & Internet of Things. He has guided 10+ PG Students. He has guided more than 70 UG level projects. He has published 25 research papers in national & international journals/conference. He secured Tally Innovation award in JED-I project challenge in 2013 held at IISC Bangalore.



In the session 1 the expert covered details on IoT devices and sensors used for projects. He also discussed some future projects based on IoT like smart fridge, smart mirror and more.



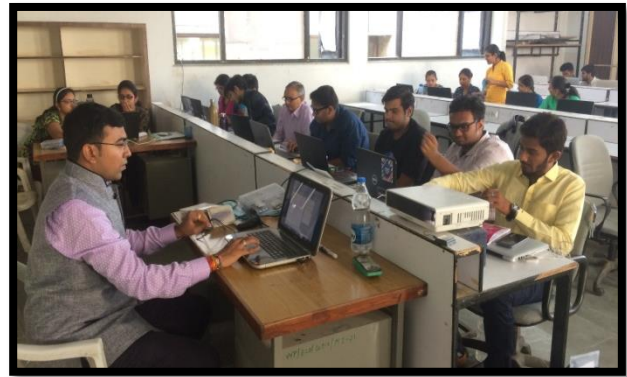
In session II basic python programming to write program for GPIO, loops and conditions were covered with installation of ESPlorer tool used for python programming for NodeMCU.

The session also covered MycroPyhton and details on basics of Mycropyhton, firmware installation on nodeMCU to write program using python NodeMCU.



Day 2 | 31st October 2017 :

- ✓ **Introduction to ESP8266 & NodeMCU**
- ✓ **Interactive computing with NodeMCU**
- ✓ **HTTP Protocol, Off-Line Webserver**
- ✓ **Android application development using MIT appInventor**
- ✓ **Experimenting with sensors & Actuators**
- ✓ **Online web server**
- ✓ **data logging using NodeMCU & cloud services**
- ✓ **MQTT protocol**



Session I on introduction to ESP8266 and NodeMCU and Session II hands-on on NodeMCU, which is widely used in IoT application design. Difference between microcontroller and SOC was discussed. Simple GPIO programming for NodeMCU using MycroPyhton.



Expert came with hardware and software (NodeMCU, interfacing board)resources required to carry out Hands-on IoT programs using MycroPyhton. He demonstrated and took hands-on for NodeMCU for GPIO, Serial, Analog sensors and more.



All participants actively worked in hands-on sessions on MycroPython.

Day 3 | 1st November 2017 :

- ✓ **Getting started with Raspberry Pi & Rasbian Os**
- ✓ **GPIO programming on Raspberry Pi**
- ✓ **ArduPi and WiringPi, IoT using Raspberry Pi**
- ✓ **Visual programming: NodeRed**
- ✓ **Introduction to Wylidrin**



In session I, Expert introduced Raspberry Pi board and its features. He explained the theory required to get the work started on IoT using Raspberry Pi. He guided participants for OS concepts, Raspberian OS installation, GPIO programming for Raspberry Pi board. He also explained how to get screen on Raspberry Pi board on laptop using tools mobaextream and putty.



All participants actively worked on the hands-on sessions are found fan of the teaching style of eminent speaker. With his PTP = Practical – Theory – Practical method.



A click for organizers with speaker



He introduced ArduPi concepts and explained library installation of ArduPi for Raspberry Pi and programming Raspberry Pi using Arduino syntax.

In session II, Node-RED (a visual tool available in raspberain OS) to write IoT program was demonstarted with its installtion. During hands-on all participants were able to write IoT progrms of simple GPIO to social message sending and email access using Node-RED.



Prof. Jignesh Patoliya was expert speaker for day 1,2 and 3. So at the end of the day he was greeted with Memento and Technical Expert Certificate by organizers. Also a group photo with partciapnts for remeberance.

Day 4 | 2nd November 2017 :

- ✓ **Getting started with C.H.I.P**
- ✓ **GPIO Programming of C.H.I.P**
- ✓ **IoT/NoT using C.H.I.P**
- ✓ **Connecting CHIP with Mobile using BLE**
- ✓ **UI Development with NodeRED,**
- ✓ **Preparing Custom MQTT WebApp,**
- ✓ **CHIP Dashboard**
- ✓ **Live Maps**



Mr. Ashutosh Bhatt
Embedded S/W Er,
IoT app developer,
eInfochips, A'bad

Expert : Mr. Ashutosh Bhatt is working as an Engineer in eInfochips Ltd, Ahmedabad in Product Engineering Services Division. He also provides technical consultancy at Intellectual Inspiraions Pvt. Ltd, Ahmedabad. He is actively involved in various industrial projects related to application of Embedded Systems and IoT. He has completed M. Tech from Charotar Uni. of Science and Technology, Changa in 2016 with specialization in Embedded Systems and VLSI Design. He received his B.E. Degree in Electronics & Communication Engineering from Gujarat Technological University in 2013.

His Research Area includes Embedded System Design, Embedded Linux based applications, IoT based applications, Robotics and Brain Computer Interface. He has also conducted multiple workshops on topics related to Embedded Systems, Real Time Operating Systems, Robotics and IoT.



On this day the expert introduced new SOC called C.H.I.P. and demonstrated its features to the participants. Later session he explained installtion of UI NodeRed and gave hands-on on UI development on windows NodeRED. He explain the use of all UI componnats of NodeRED flows practically.



Active participation during hands-on session of UI flows of NodeRED.

Day 5 | 3rd November 2017 :

- ✓ **Getting started with FreeRTOS,**
- ✓ **Introduction & implementation of RTOS Concepts,**
- ✓ **Tasks, Mutex, Semaphores, Scheduling**
- ✓ **IoE using cisco packet tracer**



In the session I expert introduced Arduino board features and its IDE. Explain its installtion followed by GPIO program to check board. Then he presented RTOS concepts of TASK, SCHEDULER, MUTEX, SEMAPHORE.



After presentation there was a FreeRTOS installation for Arduino environment and hands-on session to demonstrate the concepts of RTOS. In session II experts briefly explain about IoE (Internet of Everything). IoE as a concept can be understood by using tool Packet Tracer.

As it was the end of day 5 – technical sessions of STTP, respected Principal of V.V.P. Engineering College - Dr. Jayesh Deshkar greeted key note speaker Dr. C.H. Vithalani and Mr. Ashutosh Bhatt (Technical Expert from e-Infochips) for accepting our invitation of STTP.



Principal sir is facilitating Mr. Ashutosh Bhatt and Dr. C.H.Vithalani with Letter of thanks and expert certificate for delivering their expert sessions.



STTP “IoT & MycoPyhton”, 2017 Group Photo



Certificate of appreciation to the organizers

Feedback from the participants :



Dr. C.H. Vithalani
(HOD EC, GEC, Rajkot)
(One of Participant)

Feedback about STTP by Dr. C.H. Vithani as he is our key note speaker as well as he is participant of the STTP. His words about STTP

- Most of the time this STTP is equivalent to stttp at IITs, as I have attended workshops at IIT-kanpur, IIT-kharagpur.
- Very enthusiastic team to co-ordinate the STTP like hospitality, food arrangement, technical team and all.
- The experts are very good. Just by seeing their enthusiastic faces and efforts I am very keen to learn. In every session of the STTP I learnt new things.
- On IoT I wanted to learn so many things and I got completely satisfied during this STTP.

Feedback from Prof. Himanshu

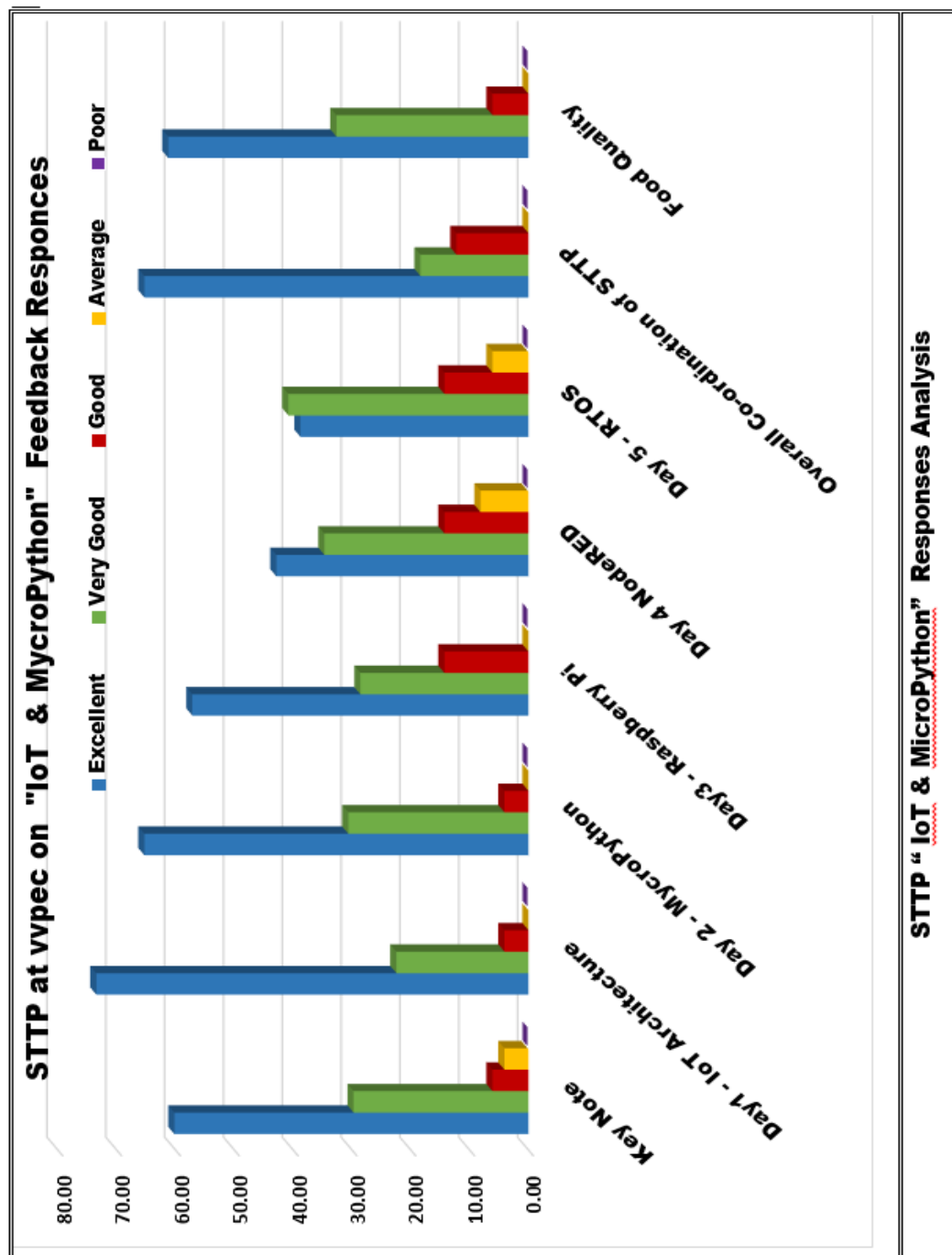
His words about STTP:

- The team work of this STTP is very good, without team work this type of STTP is not possible.
- The technical content of this STTP is very good. We got very good training during hands-on sessions.
- Thank you to organisers of STTP for organizing such good STTP and technical experts for delivering the expert sessions.
- We are also going to arrange this type of STTP at our institute in near future.



Prof. Himanshu Rakholiya
SSASIT, Surat
(Participant)

**Feedback Form Analysis of STTP for
Technical content, co-ordination and hospitality during STTP**



Day 6 | 4th November 2017 :

✓ **Field Trip at SAMVEDNA HEIGHTS**

To visualize the use of embedded system we (organizers) plan to put field trip at SAMVEDNA HEIGHTS – a complete home automation system installed towers in rajkot.

Mr. Rajesh Daftari (managing Director), V.V.P. Engineering College, Rajkot is very much thankful to him for their support to our sttp for demonstrating their fully automated flats.



એક સિમ્પલ ક્લિકથી લાઈટ્સ, મ્યુઝીક, ટીવી સિક્યુરીટીનો સ્માર્ટ મંત્ર છે,
કુલી ઓટોમેટેડ હોમ એટલે કે **સંવેદના હાઈટ્સ હોમ.**

From Your Mobile Phone You Can Open Main Door, Curtains, Home Theater,
On-Off Switch and Other Home Appliances, Fully Automation with POP LED light, Mood Lights
Total 164 Item included..

Web : www.samvednabuilders.com e-Mail : info@samvednabuilders.com

All participants enjoyed the visit where the TEAM SAMVEDNA HEIGHTS demonstrated automation to operate door lock – unlock (IoT based), one touch home theater systems, bluetooth speaker for calling, smart alarm system, drawing-hall window curtain, lights (switching and intensity), kitchen, bathroom and bedroom lights and many more.



Participants @ SAMVEDNA HEIGHTS,

✓ **Certificate Distribution for Participants**



Certificate Distribution Ceremony

Media Coverage:

The STTP details were largely covered in Rajkot daily newspapers.



Vote of Thanks:

- ✓ We, the organizer of STTP are very much thankful to VVP Management for giving all support for the successful organization of the STTP.
- ✓ We, V.V.P. Engineering College are thankful to Gujarat Technological University (GTU) for providing the sponsorship to this dream STTP of CE and EC dept.
- ✓ We are thankful to all participants who have actively participated in the STTP as due to their participation we are able to make it happen.
- ✓ We are also thankful to Indian Society for Technical Education (ISTE) for the approval of the STTP as ISTE approved STTP.
- ✓ Last but not the least we are thankful to all committee members of the STTP (Registration, Accommodation, Food Arrangement, Financial, Printing, Photography, Media Publicity) who made the STTP successful.
- ✓ We are thankful to all the staff members of CE and EC dept. who are directly or indirectly related with the STTP.

Dr. Jayesh Deshkar

Principal,

V.V.P. Engineering College,

Rajkot

Dr. Tejas Patalia

Convener
(HOD CE)

Dr. Charmy Patel

Convener
(HOD EC)