



GUJARAT TECHNOLOGICAL UNIVERSITY

CiC3

Community Innovation & Co-Creation Centre

Report

on

3D Printer Workshop

Organized on

1st-2nd September 2018

at

CiC3

Community Innovation & Co-Creation Centre

IIT Gandhinagar Shed No. 2

Chandkheda Campus, Near Visat Cross Road, Chandkheda

Ahmedabad



Details about Workshop

Subject:	3D Printing Technology is a process of making three-dimensional solid objects from digital file. 3D printer is used by big industry to student for making Proof of Concept using any ABS or PLA Material. Student had done hands on 3D design software, also learnt part of 3D printer,
Arduino Programming How it will be useful to student	: how to assemble 3D printer & during workshop participant learned how to Make 3D model.
What skill will be developed	: Student has learned 3D model design Software and got a chance to try their hands on the 3D printer. He discussed and showcased some of the futuristic projects like 3D printed blocks, gears, robotic arms, nut-bolts etc.
Participant student Branch	: Mechanical, Mechatronics, Automobile, Plastic, Civil Engineering, Electronics and Communication, Instrumentation & Control, Electrical, Biomedical
Entries	: 65
Faculty Mentor	: Mr. Meet Patel (I- create) & Sahil Kalal (Team Member Robocon)
Co-Ordinator	: Asst. Prof. Raj Hakani (CiC3 - GTU)

Gujarat Technological University has established **Community Innovation & Co-Creation Centre (CiC3)** at GTU to promote innovation and to provide a facility for the students, where they can develop products and test new ideas. **C-i-C3** regularly organizes workshops and seminars to upgrade knowledge and build advanced skills among the students of Engineering.

GTU has organized Two-day Training program on 3D printer on 1st -2nd Sept 2018 at CiC3, GTU Ahmedabad. In that, 75 participants registered for the workshop and 52 students (BE and Diploma) from 29 colleges, 6 faculties from GTU affiliated colleges and 7 Ph.D Scholars has taken part in these workshop.

The workshop began with a welcome speech by Asst. Prof. Raj Hakani Sir. He addressed and delivered introduction of CiC3 to students. Prof. Raj Hakani then carried the session with basics of Printing technology and 3D printer Methodology.



Basics of 3 D Printer

Basically, the 3D printer is an additive technology rather than subtractive technology, in that the design is made layer by layer. Additive manufacturing is the creation of solid objects without the use of conventional tooling, usually directly from a CAD model or other digital information. Then after Mr. Meet Patel explained the various model of the 3D printer based on the methodology and material and how it's going to use in various domains. Then he explained the physical attributes of various material used in the 3D printer. There are number of Material options for 3D printing such as metallic, sand, wax, bio compatible material etc. But ABS and PLA (Polylactic acid) are the most used material now a day.

GTU CiC3 has the most advanced 3D Printer of Makerbot (Z18) which used PLA material. Student gets the knowledge of Makerbot Z18 3D Printer specification and how to operate safely. 3D printer only accepts the digital CAD file of .stl or .obj extension. Hence, the next session was to create the innovative product design using CAD software. Participants have been divided into teams of 5 students and asked to design at least one creative object per group.

Afterwards students had finalized and made 22 innovative designs and with help of Mr. Meet Patel and Mr. Sahil Kalal they printed it using 3D printer. Students have designed the various model using CAD software like Circle Master, GTU Logo, CAD Design Teaching, Mini Robot, Mobile Stand, Dumble, Keychain, Symbol, Hammer, Musical Instrument, Mini Car etc. Then best three prototype model design nominated for the prize. The best two designs allotted were Mini Robot and Small Keychain with College Name and Symbol.

Day 01 (1st September, 2018, Saturday)

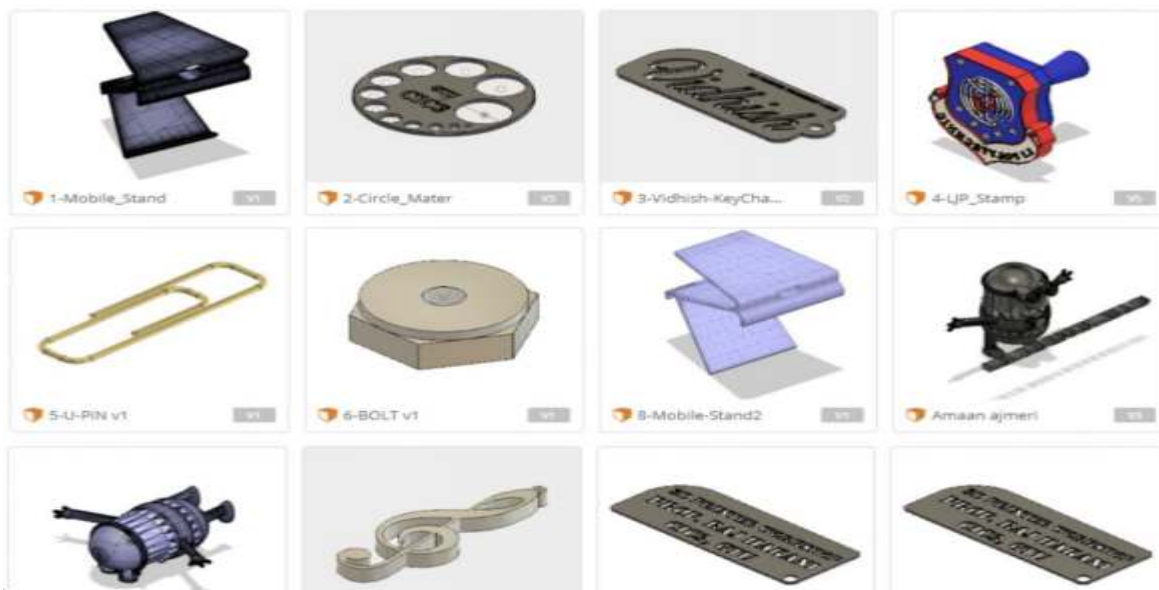
- Introduction of 3D Printer
- Rapid Prototyping Technique
- Different Types of 3D Printers
- Materials Used for Printing
- Introduction to G Codes Used in 3D Printers

Day 02 (2nd September, 2018, Sunday)

- Designing of CAD Models (Fusion 360)
- Hand-on With Slicing Software (MakerBot, UltiMaker, Autodesk Print Studio)
- Testing & Calibration of 3D Printer
- Demonstration of 3D Printing
- Certificate Distribution & Prize Ceremony for Top 3 Designs







Feedback: -

- There was an excellent workshop. We had learned a lot of theoretical concepts as well as practical aspects. The first time we seen the live working of 3d Printer.
- MohammedAzim Shaikh, Faculty L.J Polytechnic
- Overall good workshop. it provides me supporting knowledge for my research work.
- Keyurbhai A Jani, PhD Scholar, GTU & Faculty, Ganpat University
- Overall it was a good workshop. It helped me to learn about the 3d printing and cad software
- Rinu Roy, GEC Patan
- It was an interesting workshop. And we learn so much new things about 3D printer and get the proper knowledge of 3D printing.
Pranay Shah, GIT, Gandhinagar
- The workshop is very interesting and we get knowledge about their type of printer in this generation. I have think this type of printer will have so all the people get there work easily.
Abhishek, VGEC

Prepared By: Asst Prof. Raj Hakani (CiC3, Gujarat Technological University)