‘3D EDU-TECH’

Nurturing Future, Fostering Technology

submitted as a part of assessment of MGT1022 Lean Start-up Management – J component

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DECLARATION

We hereby declare that the project entitled **"3D Edu-Tech : Nurturing Future, Fostering Technology "** submitted by us, for the j-component evaluation of MGT1022 Lean Start-up Management is a record of bonafide work carried out by us under the guidance of **Dr. Siva Prasad Darla**, School of Mechanical Engineering, Vellore Institute of Technology, Vellore.

We further declare that the work presented in this report has not been copied from others and submitted for the assessment of any other course, either in part or in full.

SIGNATURE OF STUDENTS

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ABOUT THE START-UP, IDEA & ANALYSIS

1. About the Start-up: An Overview to '3D Edu-Tech'

3D Edu-Tech is an emerging Edutech service & product-based start-up in Indian education providing STEM (Science, Technology, Engineering and Mathematics) focused project specific learning at grass root level through modern technologies i.e. 3D Printing and Sustainable engineering. Our objective is to harness innovation in young minds and to advance the education in the subjects of modern technologies and sustainable engineering.

Our flagship products will include curriculum structured on the concept of 3D Printing, Sustainable engineering in sync with the all educational boards that imparts 3D printing professional and CAD Designing skills with proper classroom integration of academics taught to them, and an incubation cell, where interested students/individuals may approach to learn more about technology, 3D printing and obtain assistance to bring their ideas to reality.

2. Today's Crisis (Market Requirement/Demand):

80% of the jobs in the future requires relevant skills which are currently not being taught in the schools. Thus, arises a crisis, whose major problems are:

- Lack of commitment towards technological literacy in education segment at gross-root level.
- Need bridge between Industry and Academia at K-12 level.
- Lack of STEM focused, Cross-curriculum Activities at education segment.

3. Our Vision: Insight into the Start-up:

Envisioning the role of technology in transforming education, we serve educational institutes with hands-on experience and models along with technology based, STEM focussed projects to students. We constantly strive to provide better and meaningful education to students and help fill the gap between the school and industry by assisting in developing skills required in the industry and providing application-based learning in collaboration with engineering concepts.

4. About the Technology:

3D printing is any of various processes in which material is joined or solidified under computer control to create a three-dimensional object, with material being added together (such as liquid molecules or powder grains being fused together). 3D printing

is used in both rapid prototyping and additive manufacturing (AM). Objects can be of almost any shape or geometry and typically are produced using digital model data from a 3D model or another electronic data source.

5. What do we offer: Curriculum Based Hands-on-Experience

The old-school model of passively learning facts and reciting them out of context is no longer sufficient to prepare students to survive in today's world. 3D Edu-Tech has taken an initiative to nurture the young minds at gross-root level through transformative technology and make then future ready. We are bringing real-life context and modern technology i.e. 3D printing and Internet of thing [IOT] to the curriculum through experimental learning approach, students are encouraged to become independent workers, critical thinkers, and lifelong learners. Our progressive curriculum is designed for the 5th to 12th standard students in sync with the academics of their educational boards.

6. BENEFITS:

I. **Technological literacy:** 3D Edu-Tech is committed to advance education in the subjects of modern technology to nurture our young mind at gross-root level.

II. **Creativity & Problem-solving skills:** 3D EduTech's STEM focused curriculum on 3D printing will help our students to develop their soft skills by engaging themselves in real life projects.

III. **Workforce development:** 3D Edu-Tech emphasis on skill and workforce development in education segment is the need of time to overcome with problem of unemployment.

IV. **Academic Enhancement:** 3D EduTech's curriculum designed is sync with all the educational board which will create student’s attainment towards STEM subjects.

START-UP REQUIRMENTS AND BACKGROUND RESEARCH

1. Printers and Technology:

3D printing is any of various processes in which material is joined or solidified under computer control to create a three-dimensional object, with material being added together (such as liquid molecules or powder grains being fused together). 3D Printing Technologies used:

A) Stereolithography (SLA)

B) Digital Light Processing (DLP)

C) Fused deposition Modeling (FDM)

D) Selective Laser Sintering (SLS)

E) Selective Laser Melting (SLM)

F) Electronic Beam Melting (EBM)

G) Laminated Object Manufacturing (LOM)

While selecting any printer or equipment, it is necessary for us to understand it's features, qualities, capacity, ease of accessibility and above all efficiency in work and financially. Therefore, while selecting a printer for such an enterprise, the following points should be kept in mind at all times:

A. Printer cost
B. Print quality
C. Print speed
D. Printer capability
E. Practicality
F. User expectations

As per the market, various 3D printers are available at affordable costs. Some noteworthy mentions are as follows:

1. Flashforge Creator PRO (79,690 INR)

A. Build Volume: 227 X 148 X 150 mm
B. Layer Resolution: 100 Microns
C. Nozzle Diameter: 0.4 mm
D. Filament Diameter : 1.75 mm
E. Supported Filament : ABS, PLA, PVA
F. Print Speed : 40 mm/s

G. Power Requirements : 100-240 V, ~2amps, 50-60 Hz, 350 W
H. Product Weight : 13.5 Kgs
I. Product Dimensions : 480 X 338 X 385 mm

2. Flashforge Guider II (1,56,400 INR)

A. Build Volume: 250 x 280 x 300 mm
B. Printing Material: PLA, ABS, PETG, TPU, HIPS, PVA
C. Print Speed: 24 cc/h
D. Filament Diameter: 1.75 mm
E. Layer Resolution: 50-400 microns
F. Positioning Precision: XY: 11 microns, Z: 2.5 microns
G. Nozzle Diameter: 0.4 mm
H. Heated Bed: Yes
I. Printer Dimension: 549 x 490 x 561 mm
J. Software: FlashPrint
K. Supported File Type: stl, obj, 3MF
L. Connectivity: USB Cable, USB Stick, WiFi

3. Ultimaker 2+ Extended (2,65,999 INR)

A. Build Volume : 223 x 223 x 305 mm
B. Layer Resolution : 20 Microns
C. Print Speed : Up to 24 mm3/s
D. Travel Speed : Up to 300 mm/s
E. Filament Diameter : 2.85 mm
F. Supported Filament : ABS / PLA
G. Nozzle Diameter : 0.4 mm
H. Extruders : Single
I. Power Requirements : 100-240V ,1.4 AMPS
J. Product Weight : 12 Kgs
K. Product Dimensions : 357 x 342 x 488 mm

4.4.Form 2 SLA 3D Printer (57,820 INR)

A. Printer dimensions: 13.5 × 13 × 20.5 inches (35 × 33 × 52 cm)
B. Weight: 13 pounds (28kg) Display: Interactive touchscreen
C. Light source: EN 60825-1:2007 certified Class 1, 405nm, 250mW violet laser
D. Connectivity: USB wire, Ethernet, Wi-Fi

E. Build size: 5.7 × 5.7 × 6.9 inches (145 × 145 × 175 mm)
F. Power requirements: 100–240 V
G. Layer thickness: 0.001, 0.002, 0.004, 0.008 inches (25, 50, 100, 200 microns)
H. Print material: Photopolymer resin
I. Resin supply: Auto-refilling
J. Resin cartridge capacity: 1 liter
K. Software: Formlabs Preform
L. Operating system: Windows 7 or later, Mac OS X 10.7 or later
M. File types: STL, OBJ, FORM

5. Wanhao 3D printer (27,899 INR)

A. Printer Type: FDM
B. Material: PLA
C. Build Volume: 20 x 20 x 18 cm
D. Product Weight: 12 Kgs
E. Minimum layer Height: 100 microns
F. Extruder Head: 1
G. Open Source: Only software
H. Heated Platform: Yes
I. Filament diameter: 1.75mm
J. Connectivity: USB SD card

2. Raw material:

Currently, plastics are the most widely used materials in this area, and the important ones are listed below:

- ABS – acrylonitile butadiene styrene or 'lego' plastic – a very common choice for 3D printing (1KG 1200 -900 INR)
- PLA – polylactic acid – Is available in soft and hard grades, is becoming very popular and may overtake ABS in the near future (1KG 500-800 INR)
- PVA - polyvinyl alcohol – This is used as a dissolvable support material or for special applications.
- PC – polycarbonate – Polycarbonate requires high-temperature nozzle design and is in the proof-of- concept stage. (1KG 1200-1,800 INR)

- SOFT PLA – polylactic acid – Is rubbery and flexible, available in limited colors and sources. As 3D printing spreads, may get easy to find. Known as Polylactic acid, or PLA, this material has advantages as it is biodegradable, unlike ABS. PLA is manufactured using renewable raw materials such as corn starch. PLA is one of the easiest materials to print, though it does have a tendency to shrink slightly after 3D printing. You don't require a heated platform when printing in PLA, unlike with ABS. PLA also prints at a lower temperature than ABS, at between 190ºC to 230ºC.

PLA is a more difficult material to manipulate due to its high cooling and solidification speed. It is also important to mention that models can deteriorate when in contact with water. However, the material is consistent, simple to use, and comes in a wide variety of colors, making it suitable for FDM 3D printing.

(a)Why Poly-Lactic Acid (PLA)? PLA production is a popular idea as it represents the fulfilment of the dream of cost efficient, non-petroleum plastic production. The huge benefit of PLA as a bioplastic is its versatility and the fact that it naturally degrades when exposed to the environment. For example, a PLA bottle left in the ocean would typically degrade in six to 24 months. Compared to conventional plastics (which in the same environment can take several hundred to a thousand years to degrade) this is truly phenomenal. Accordingly, there is a high potential for PLA to be very useful in short lifespan applications where biodegradability is highly beneficial. Of note, despite its ability to degrade when exposed to the elements over a long time, PLA is extremely robust in any normal

(b)Structural Benefits of PLA: Now that we know what it is used for, let's examine some of the key properties of Polylactic Acid. PLA is classified as a "thermoplastic" polyester (as opposed to "thermoset"), and the name has to do with the way the plastic responds to heat. Thermoplastic materials become liquid at their melting point (150-160 degrees Celsius in the case of PLA). A major useful attribute about thermoplastics is that they can be heated to their melting point, cooled, and reheated again without significant degradation. Instead of burning, thermoplastics like Polylactic Acid liquefy, which allows them to be easily injection moulded and then subsequently recycled.

3. Funding:

We have planned to obtain the initial investment through Stand-Up India programme, under the Start-up India scheme. Following is an attached form for registering a loan through this scheme.

The Stand-Up India Initiative can supply a loan up to INR 5lacs to entrepreneurs, for their start-up endeavors.

Category

Whether Promoters belonging to the category Women and hold 51% or higher stake?

○ Yes ◉ No

Whether Promoters belonging to the category SC/ST and hold 51% or higher stake?

○ Yes ◉ No

Gender *

Select Gender

Category (based on majority ownership)

Select Category (based on majority ownership)

Nature of Business Planned

New Business Enterprise

○ Yes ◉ No

Expected Loan Amount? *

Nature of Business Activity? *

Select Nature of Business Activity?

Description of Business Activity *

Select Description of Business Activity

Available space for Business

Rented

First Time Entrepreneur

Select First Time Entrepreneur

☐ Past Business Experience?

Business Activity

Nature of Experience?

Select Nature of Experience?

Experience in years

Experience in Months

Do you need any of the following handholding support?

- ☐ Application filling/Project Report Preparation
- ☐ Energy Efficiency - Handholding for Solar Projects and Energy Audits
- ☐ Financial Training
- ☐ Margin money or subsidy
- ☐ Skilling (Vocational)
- ☐ Credit Counsellor (CCC)
- ☐ Entrepreneurship Development Program/Digital Literacy
- ☐ Handholding in a Virtual environment
- ☐ Mentoring
- ☐ Workshed Requirement

You are a Ready Borrower. You may choose to register and login to the portal and directly fill up the application form which would be forwarded to the loan centre and also directly to your chosen lender. The information would also be sent to the LDM and connect centers through the portal and through e-mail. The application can be picked up by any of the participating lenders through the portal for which feedback would be available to you along with your application details. You may approach the lenders directly for any further follow-up. The lenders may request for additional information which may have to be provided offline. The portal provides options to upload certain documents like detailed project report which would help the lenders to appraise your application. You may also choose to contact your LDM, connect centers for any follow-up / communication with the concerned lenders. You may note that loan will be sanctioned by the lenders if eligible as per appraisal and the lender norms. Additionally you may also choose to seek support of handholding agencies through the portal or offline. You may also choose to apply to the lender directly without coming through the portal. Payments (if any) for all services availed by the applicant from Help Centers are to be directly settled by the applicant with the agencies.

Name of Applicant *

Name of Enterprise

Username *

E-mail *

Mobile No. *

Type of Constitution *

Select Type of Constitution

Other Constitution

Captcha *

F4QRN

☐ I agree to the Terms and Conditions (/Home/TermsandCondition),Read and understand the SoP, User Manual, Disclaimer and Privacy Policy and Terms and Conditions of the Portal and agree to abide by the same.

Register Clear

Other avenues for funding include the following:

(a) ANGEL INVESTORS: Also called angel funder and seed investor is an individual who pays capital for a business start-up. They invest online and form networks called angel groups to share investments. They basically focus on companies they are sure can make good profit. They screen the proposals and offer advices along with the capital. Many prominent companies like Google, Yahoo etc. were assisted by angel investors.

The Chennai Angels is a group of angel investors. It is mentored by more than 70 experienced entrepreneurs who are ready to nurture success and fund start-up ideas. Various professors from the top colleges of India and a number of businessmen and engineers serve as the angel investors and nurture new start-up ideas.

- Ventures with unique ideas with potential for rapid, scalable growth within a reasonable time frame.
- Businesses with proprietary technology, early market lead and other strong barriers to entry.
- A strong management team to execute the business plan, with relevant and successful experience.
- Entrepreneurs who can provide evidence of the validation of their concept and particularly those who have begun to engage with the market have a stronger proposition.
- A credible exit strategy for investors.
- Preference for ventures from South India.
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Major investors as Angel investors include:

- Ashok Jhunjhunwala, Institute Professor at IIT Madras
- K Jagannathan, Larsen & Turbo
- Gopal Srinivasan, TVS Capital Funds Limited
- S. Premkumar, HCL Infosystems
- Sreehari Sundaram, director of Pan Asia Group
- Gowri Shamkar Subramanian, CEO and Co-founder of Aspire systems

(b) MICROSOFT FOR START-UPS: Microsoft has partnered with a number of start-up accelerators and incubators all over the world to offer exclusive benefits. Some of its sponsors are:

- Gen Next Hub (Reliance)
- Entrepreneur's Roundtable Accelerator
- Startech
- Zone Startups India
- Techstars

Microsoft offers engagements with other startups, along with access to recent technology, and new community spaces that promote collaboration across local and global ecosystems.

- Digital and social campaigns to promote your solution at launch
- A customized Go-To-Market plan to maximize joint marketing with Microsoft
- Targeted industry co-marketing and account planning

(c) LETS-IGNITE CROSS BORDER (INDIA'S FIRST GLOBAL INVESTOR SUMMIT): Letsignite Cross Border is the first investor summit aimed at providing global investments for startups. Being sponsored by NetApp Accelerator and PayU, it is a joint initiative by LetsVenture and Swissnex India, the Consulate General of Switzerland.

(d) GOVERNMENT PROGRAMS THAT OFFER START-UP CAPITAL: Indian government has launched 10,000 Crore start-up fund and the Bank of Ideas and Innovations Program. The popular Pradhan Mantri Micro units Refinance Agency Limited (MUDRA) is launched by the government that extends profits to 10 lakhs to small and medium enterprises. Once the business plan is approved, the loan is sanctioned and a MUDRA card is provided which can be used for the expenses for the start-up.

(e) NASSCOM'S 10000 START-UPS: '10000 startups' is an initiative by NASSCOM to enable funding and support for 10000 startups in India. Being leaded by the President Debjani Ghosh, it has Startup Haryana, Government of Karnataka, Government of Kerala, Indian Angel Network, Webel etc. as its partners. The aim is to identify and groom high potential startups through the best of global market exposure, industry connects and market access. It is funded mainly by SAIF Partners, Axilor, and ICP-Inventus.

(f) MICROFINANCE PROVIDERS (OR NBFCs): If qualifications for the bank loan are not met, Microfinance Providers and Non-Banking Financing Corporations are helpful. These

corporations provide banking services without meeting the legal requirements of a bank.

(g) BANK LOANS: Funding from banks involves usual process of sharing the business plans on the basis of which the loan is sanctioned. Leading banks like Axis Bank, HDFC, ICICI, Bank of Baroda have a variety of options to offer loans.

(h) SMART FIFTY: Smart fifty is an initiative aligned with the country's focused approach to promote entrepreneurship driven social development. IIM Calcutta Innovation Park in partnership with DST – GoI, has launched 'Smart fifty' – a search for solutions to transform India'. It is a contest which awards sustainable and motivating startups the following:

- Top 10 startups can get funding up to Rs.1 crore each and assures incubation at IIM Calcutta.
- Top 50 Startups can get assured funding of Rs.4 Lakh each
- Top 400 startups can get assured funding of Rs 1 Lakh each
- Top 3000 Startups win assured benefits of Rs.50,000 each
- Total prize money is Rs.21 crore (Cash+Benefits)

The investment partners include:

- Indian Angel's Network
- IvyCap Ventures
- Tribe
- Social Alpha
- Ankur Capital
- Villagro possible

(i) **TiE Delhi NCR:** With a strong mentor support base, various events throughout the year covering various aspects of entrepreneurship, expanding into new geographies and business & organization management and multiple opportunities to showcase and network, it has emerged as one of the biggest platforms supporting entrepreneurship. The investors are:

- Explara
- The Lemelson Foundation
- Blue cloud Venture
- I2k2 Networks

Great startups like Blendoor, Hue Noir, Goumikids, Hemex Health, Hubbh, Silvernest, Zapproved and Source Direction were funded and supported by TiE.

5. Suitable market:

We approached the following schools with our proposal, to understand the market and the target audience better, in order to comprehend their requirement and what we can offer in the same context.

1. Modern Academy High school, Rehmbal, Jammu and Kashmir

- Principal Name – Mr. Ankush Verma
- Students from V to X – 150
- Number of students interested – 40
- Additional Comment – It's a very good idea. Initiatives like these will surely improve the quality of education.

2. United International School, Bangalore

- Project Co-ordinator Name – Mr. Ajay Gupta
- Students from V to XII – 250
- Number of students interested – 120

3. Radhika Town Public School, Rishra, Kolkata, West Bengal

- Principal Name – Mr. Shashank Singh
- Students from V to X – 120
- Number of students interested – 30
- Additional Comment – Very different idea and good for students. Moreover, government should also provide such program and subsidies to students.

4. Aryan Orient academy, Kanpur

- Name of Authority – Mr. Upkar Sharma
- Students from V to XII - 250
- Number of students interested – 100
- Additional Comment – Very good idea. Faculty should be experienced and proficient so that objectives of the product/ service can be fulfilled.

5. Excel Matriculation School, Pune

- Principal Name – Mr. Nitesh Bhansali
- Students from V to XII – 550
- Number of students interested –300

- Additional Comment – Totally new idea and useful idea.

6. Spring Dale School, Indira Nagar Branch, Nagpur

- Project Co-ordinator's Name – Mrs. Geeta Kothari
- Students from V to X – 900
- Number of students interested –200

7. RK Senior Secondary School, Lucknow

- Principal Name – Mr. H.N. Jaiswal
- Students from IV to X – 1000
- Interested Students - 400
- Additional Comments - This is the era of technology and its need of time to equip our student with transforming technology to shape their future and we are doing so with help of such technology and program

8. Seth M R Jaipuria Schools, Lucknow

- Principal Name – Mr. Reshabh Jain
- Students from V to X: 200- 300
- Additional Comments - Such programs will be providing real life experimental learning through modern technology, where our students are getting real means of their theoretical knowledge.

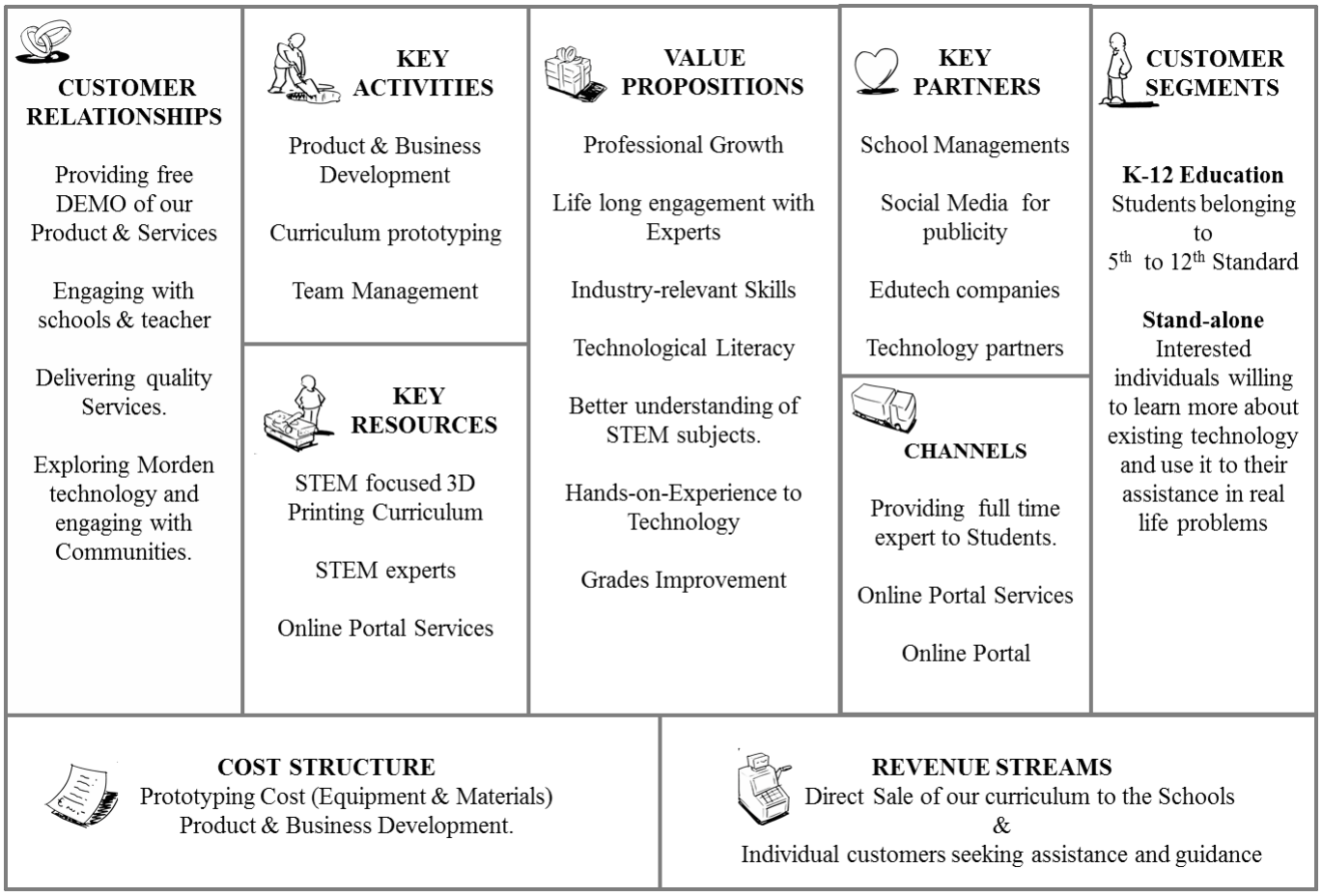
6. Labour/ Management requirement:

As the start-up is a teaching and skill based, that requires professionals to go from school-to-school, teaching students about how to use the appropriate software, handle the 3D printer and utilize it for their own benefits and academic purposes. Thus, there arises the need to recruit more people to handle the operations and also manage the work efficiently.

(Hiring of professionals/ interns has been discussed in the later part of the report)

BUISSNESS MODEL

1. BUSINESS MODEL CANVAS:



2. <u>PROBLEM/ OPPORTUNITY:</u>

There are several challenges plaguing the Indian K12 Education system which limits the development of learners and quality education.

- Lack of proper systems and end to end support to provide experiential learning at schools.
- Lack of commitment towards technological literacy at gross-root level.
- Less focus on analytical learning and skill development learning at grass-root level.
- Less focus on innovative and learner centric approach.
- Huge gap between Industry and academia at K-12 level.

3. SOLUTION:

The old-school model of passively learning facts and reciting them out of context is no longer sufficient to prepare students to survive in today's world. 3D Edu-Tech has taken an initiative to nurture the young minds at gross-root level through transformative technology and make then future ready. We are bringing real-life context and modern technology i.e. 3D printing and Internet of thing [IOT] to the curriculum through experimental learning approach, students are encouraged to become independent workers, critical thinkers, and lifelong learners. Our progressive curriculum is designed for the 5th to 12th standard students in sync with the academics of their educational boards.

3D Edu-Tech have designed a 3D printing curriculum for the schools in sync with their academics which impart 3D Printing and Designing skills with proper classroom integration of the various subjects being taught to them. “3D Edu-Tech Innovation labs” will be setup in schools where a set of trainers train the students through 3D printing to practicalize the everyday concept and hand on approach to visualize- design-create.

4. WHAT MAKES US UNIQUE?

3D Edu-Tech follows a unique multi-stage process to ensure that the curriculum is in sync with needs of respective school boards.

- Concept selection
- Brainstorming & Mapping with academic indicator
- Execution of Concept
- Prototyping of concept.
- Evaluation & Validation

The project is cost-efficient, has a targeted approach to systematic understanding of both curriculum & Te3chnology, and provides a great learning experience at an affordable cost.

5. SCOPE OF 3D PRINTING IN CLASSROOM:

3D-Printing & Reverse Engineering

REVOLUTIONISING

the

K-12 Education

3D Printers have actually been around for about 25 years. Barriers like costs are breaking down, so they are now very affordable and easy to use.

3D Printing has caught the attention of educators who are looking into ways to incorporate it into the classroom.

Using 3D Printers in the classroom could mean:

Biology students can study cross-sections of hearts or other organs.

Design and Engineering students can make prototypes of their creations.

Chemistry students can print out complex molecules to study.

Architectural students can print new or existing designs.

Engineering students can print modified car or robot parts.

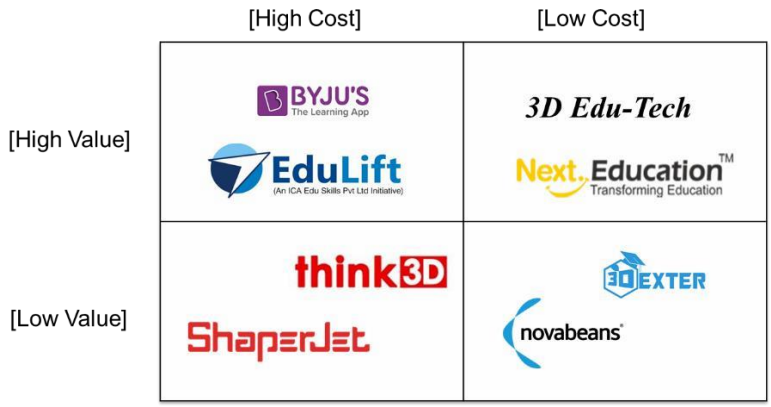
History classes can print artifacts for closer examination

Geography students can print out topography, population or demographics of an area.

Graphic design students can create prototypes of product designs

Food Technology students can design molds and cookie cutter templates

6. COMPETITORS:



7. VALUE PROPSITIONS:

- **Professional growth:** Learning should be a lifetime pursuit that we all pursue with passion and dedication. Perhaps this is most important for educators who are trained to help foster a love of learning into the next generation. Professional development is the key to helping teachers perform better in the classroom. With new advances in technology, edu-tech is making it possible for teachers to take that much-needed time off to invest in their own education. Problem-solving, creative thinking, digital skills and collaboration are in greater need every year yet are not taught in our schools. Even when schools teach digital skills, they focus on how to use technology – how to create a document or a presentation – rather than how to create technology. To prepare all students with the creative, collaborative and digital problem-solving skills of the future, schools must include technology along with education.

- **Life-long engagement with experts:** All around the world, leaders from government and industry debate the future of work and the changes brought by technology and automation. Despite this, the world is not reacting fast enough to update our system of education. 3-D printing technology would open new doors for young children to discover their talents and perform well in academics. They would also themselves learn a lot about 3-D printing that would help them secure a lot of information about industrial technology. They would be taught by trained individuals who would help gain a lot of knowledge from their teachers.

- **Industry-relevant skills:** Edu-tech companies must host webinars and short periodic tests to help the students get a long-lasting impact of lessons. There will be many changes in the field of education, especially as it is combined with technology. Creating products will need to connect what is nice to have, what teacher wants to have and what must be included in the product to make the product useful for the students.

- **Technological literacy:** According to analysis of 750 occupations by the McKinsey Global Institute, 51% of job activities are highly susceptible to automation – and that's through adapting currently demonstrated technology alone.. Technological change demands stronger and more continuous connections between education and employment. Government, educational institutions, employers, employees and regional authorities believe that the gap between the educational institutions and the industries should be bridged.

- **Better understanding of STEM subjects:** The influx of new technologies and learning models means that traditional learning methods will evolve in coming years. Classroom technologies will see learning models becoming more personalized to suit the needs of individual learners. With the help of models, that are demonstrative, it would be much easier to teach young children. Students have always been excited by experiments and workshops that make studies easier and fun. Via 3-D printed models, bridging the gaps between science, technology and mathematics would be quite easy.

- **Grade improvement:** Challenges are inevitable, so preparing young students for learning different subjects would be easier and more effective using the 3-D printed models. This way, the usual concepts that they learn only a a theory component of their course can be explained with a demonstration. Since they themselves would be engaged in making 3-D models, they would learn a lot about technological knowledge and thus would lead to better grades.

- **Creativity & Problem-solving skills:** STEM focused curriculum on 3D printing will help our students to develop their soft skills by engaging themselves in real life projects.

- **Workforce development:** 3D Edu-Tech emphasis on skill and workforce

development in education segment is the need of time to overcome with problem of unemployment.

8. KEY PARTNERS:

- **School managements:** When selling to a school, there are several interested parties, such as principals, teachers, administrative staff, children and their parents. People who make the executive decisions are not necessary the ones who will use the technology. For example, if the school wants to change its current learning management system, the principal needs to approve it and wait for a decision from a higher authority figure (such as a superintendent or the school board). Teachers and students will use it, but part of the costs are will be on parents.

- **Social media for publicity:** With billions of people around the world using social networking sites such as Facebook, Twitter and LinkedIn, it is important to include these communities when promoting a product or a business. The number of people you can reach is a huge benefit to using social networking sites to promote your product, as is the amount of resources that are required. Using social media and social networking is a lot cheaper than traditional marketing and advertising methods. Promote a product using social networking sites by determining where your customers and potential customers are, and getting your product visible on those sites.

- **Edu-tech companies:** By using technology, Edu-tech companies seek to improve teaching and learning processes and therefore improve the performance of the education system. Digital skills will be required by companies. And those people who don't have these skills will find it more difficult to access the labour market. Thus, edutech companies are important. What started as an experiment in education delivery is now being transformed by a new breed of technology entrepreneurs. It is about applying digital technology to deliver a new form of learning architecture. An architecture that harnesses the social reach of the internet, that delivers personalized learning and training that can automatically adjust to an individual's learning competence and that uses big data analysis to understand the most effective ways for learners to progress. In changing the traditional architecture of education, EduTech has the power to create efficiencies, cut costs and enable new levels of standardization and democratized access.

- **Technology partners:** Dealers and other partners catering technology, tech-support, raw material and other miscellaneous assistance

9. CUSTOMER SEGMENT:

- K-12 Education Students belonging to 5th to 12th standard: Since the education sector already has existing systems, it will be more comfortable for EduTech companies to grow. The introduction of new technologies to the industry will be more straightforward compared to those sectors whose systems ought to be reinvented first.
- Stand-alone: Interested individuals willing to learn more about existing technology and use it to their assistance in real life problems: Young people who have knowledge of Designing, 3-d printing etc. can help young children know more about them. The teachers for the start-up must nurture new talents and help students make their 3-D printed models which would make studying more apt and fun.

LEGALITIES, COMPANY REGISTRATION, FINANICIALS AND HUMAN RESOURCE

1. Registering the Company or Start-up:

The following steps are ensured while registering the company:

1. Obtain Director Identification Number (DIN): Obtain the provisional DIN by filing application Form DIN-1 online. The application form must then be printed and signed and sent for approval to the ministry along with proof of identity and address. Upon verification and approval, a permanent DIN is issued.

2. Obtain Digital Signature Certificate: The digital signature certificate can be obtained from one of six private agencies authorized by MCA 21. Company directors must submit the prescribed application form along with proof of identity and address.

3. Reserve the company name online: Company name approval must be done electronically. The applicant can check the availability of the desired company name on the MCA 21 web site. A maximum of 6 names may be submitted. Once approved, the selected name appears on the website.

4. Stamp the company documents: The request for stamping the incorporation documents should be accompanied by unsigned copies of the Memorandum and Articles of Association (MAA), and the payment receipt. The Superintendent returns the copies, one of which is duly stamped, signed, and embossed. Then the MAA must be signed by the company promoters and required information filled in their own handwriting.

5. Get the Certificate of Incorporation: Forms e-form 1; e-form 18; and e-form 32 are required to be electronically filed on the website of the Ministry of Company Affairs: Scanned copies of the consent of the initial directors, and also of the signed and stamped form of the MAA must be attached to Form 1. One copy of the MAA, Articles of Association, Form 1, Form 32, Form 18 and the original name approval letter, consent of directors and stamped power of attorney must be submitted to the Registrar of Companies. The certificate of incorporation is sent automatically to the registered office of the company by registered mail.

6. Make a seal: Companies require a seal to issue share certificates and other documents. The cost depends on the number of words to be engraved, the number of seals required, and the time period for delivery.

7. Obtain a Permanent Account Number (PAN): The PAN application is made using Form 49A. After PAN is obtained a printed PAN card would be delivered. The application for PAN can also be made online but the documents still need to be physically sent for verification.

8. Obtain a Tax Account Number (TAN): The application for TAN must be filed using Form 49B and submitted at any TIN Facilitation Center. After verification of application, the same is sent to the Income Tax Department and the TAN is issued. The application for a TAN can be made either online through the NSDL website or offline.

9. Register with the Office of Inspector, Shops and Establishment Act (State/Municipal): A statement containing the employer's and manager's names and the establishment's name, postal address, and category must be sent to the local shop inspector with the applicable fees. Establishments must be registered within 30 days of the opening of the business.

10. Register for GST: Every business whose Annual turnover exceeds Rs 20 lakh (for special states, the amount is Rs 10 lakh) has to register for GST. Please go to the GST portal and follow the procedure instructed.

11. Register for Profession Tax at the Profession Tax Office (State): According to section 5 of the Profession Tax Act, every employer (not being an officer of the government) is liable to taxation and shall obtain a certificate of registration from the prescribed authority. The company is required to apply to the registering authority using Form 1.

12. Register with Employees' Provident Fund Organization (National): The employer is required to provide necessary information to the concerned regional Provident Fund Organization (EPFO) in the prescribed manner for allotment of Establishment Code Number. No separate registration is required for the employees.

13. Register for Medical Insurance: Registration is the process by which every paid employee is identified for insurance purposes and their individual records are set up for them. As per the Employees' State Insurance (General), Form 01 must be submitted by the employer for registration after which the Employer Code Number is issued.

2. Eligibility for Start-up:

As per the Startup India Action plan, the followings conditions must be fulfilled in order to be eligible as Startup:

1. Being incorporated or registered in India for less than seven years and for biotechnology startups up to 10 years from its date of incorporation.
2. Annual turnover not exceeding Rs 25 crores in any of the preceding financial years.
3. Aims to work towards innovation, development, deployment or commercialization of new products, processes or services driven by technology or intellectual property.
4. It is not formed by splitting up or reconstruction of a business already in existence.
5. It must obtain certification from the Inter-Ministerial Board setup for such a purpose.
6. It can be incorporated as a private limited company, registered partnership firm or a limited liability partnership.

3. MoU with schools:

A Memorandum-of-Understanding would be drafted in consensus with schools by a notary, to enlist all the terms and conditions of agreement, duration of program, services to be provided and proper channel to handle grievances.

4. Hiring Policy and Methods:

Hiring interns in a company gives a young college student or a new professional some hands-on experience on industrial work. Though it is a tedious task, hiring interns is important for a start-up. The following are essential in making the start-up successful:

- **HAVING A CLEAR IDEA OF THE STAGE OF THE BUSINESS:** In the initial stage of few months, virtual interns would be perfect but as the start-up grows, hiring full time interns and employees would be more effective. In the initial stages, virtual interns offer flexibility, wide talent pool (from candidates from different cities) and makes various tasks easy (content designing, social media marketing etc.). Tools like

Skype, Google Drive and Docs, Hangout, Facebook group could be used to carry out the work. With the growing business, in-office employees are required who can control new projects. They can be guided easily.

- **REQUIREMENT OF TIME IN HIRING PROCEDURE:** Employer must look for hard work, determination, knowledge of all CAD software (computer-aided design, data analysis), confidence, fluent speaking skills, openness, excitement to join the startup. Interns must be interested in the idea of the start- up and must try to connect themselves with the start-up.
- **MENTORING AND GUIDING INTERNS:** Time and attention needs to be given to the intern to acquire new technical skills and thus prove to be an asset for the start-up. Proper communication between the intern and the employer. These may lead to better outcomes.
- **HR FORMALITIES:** must be kept in mind while creating a successful internship program for a start- up or a small & medium sized business:
- **CAREFULLY PLANNED INTERNSHIP PROGRAM:** this is essential as there should be a clear differentiation between an employee and an intern. This is required for deciding if the new intern is eligible for allowances, benefits, paid leaves etc. An intern employed for 3 months or less is not supposed to be eligible for paid leave while interns employed for more than the duration of 3months are eligible for paid leaves and other grants.
- **PAY STRUCTURE:** Paid internships are preferred because it gives a start-up a wide pool of interested candidates to select from. A monthly fixed stipend is selected for marketing internship and an incentive-based pay structure is suitable for target-based tasks.
- **DEDUCTIONS:** For paid employees, deductions like PF, ESIC, PT should be considered as per norms.
- **DOCUMENTATION PROCEDURE:** Documentation process makes hiring procedure easier.

Human resource planning is crucial to get information about the factors affecting the workforce for effective selection. Once hired, analyzing work and planning for people is essential. Job analysis is the foundation for forecasting the need for human resources as well as plans for such activities as training and promotion. Any method used to select or promote applicants must be based on a meaningful forecast to job performance. An understanding of what a worker is expected to do on the job must be reflected in the job- related interview or test questions. This is necessary for a useful forecast. Up-to-date job descriptions and specifications help ensure that the training programs reflect the actual job descriptions.

Performance appraisal is essential for an effective career path planning in any business. Employees must be judged in terms of how well they do their parts of work. It is important to critical and non-critical job requirements.

After recruiting and staffing is done, workplace training and performance management is important. For effective training process, needs assessment must be carried out to understand future challenges that might arise. It must focus on the anticipated skills of an employee. Assessment for skills must also be carried out on a group level. It helps in reducing retention costs.

5. Grievances:

3D printing is transforming how products are made, but many legal issues such civil liability and intellectual property rights still need to be clarified.

Additive manufacturing, commonly known as 3D printing, is changing how products are designed, developed, manufactured, and distributed. By 2021, the 3D printing market could be worth €9.6 billion, according to a report by the European Commission.

Although it is creating opportunities for companies, it is also raising challenges, especially concerning civil liability and intellectual property rights. French EFDD member Joëlle Bergeron has written an own-initiative report with legislative and regulatory recommendations in the field of 3D printing. Her report was adopted by MEPs on 3 July, 2106 and will be forwarded to the European Commission for consideration.

The rules regarding civil liability, as defined by the e-commerce directive, apply. However, we should consider creating specific rules for 3D printing products. As it is such a complex process and so many people are involved, it could be difficult for someone affected to identify

the person responsible. If there is an accident, the person responsible could potentially be the creator or vendor of the 3D file, the producer of the printer or the software, the supplier of the materials used or the person creating the object, depending on where the defect originated. At the moment there are no legal precedents regarding civil liability for products that were created with 3D printing. So manufacturers don't know what to expect.

As for our case, therefore, most grievances will be handled within the company itself, by a grievance cell, whose sole purpose would be to determine the problem, analyse the root cause and provide compensation if necessary. All jurisdiction would be under the place of company registration.

6. Publicity:

Marketing is necessary for a start-up. Targeted audience won't be interested in the start-up until they are well aware of what the start-up offers. Targeting, Positioning, Objective setting etc. are essential for publicizing a start-up. Advertising management is very crucial. It involves creating effective and creative advertising messages, selecting message appeals and picking endorsers, assessing ad message effectiveness, planning and analysing advertising media, employing the internet for advertisement and using other advertising media. Understanding the role of trade promotions is necessary.

A formal framework for developing advertising plans and strategy is required where alternative styles of creative advertisement are discussed. The initial coverage focusses on increasing customers' motivation, opportunity and ability to understand the usefulness of the start-up.

The following strategies could be used to publicize the 3D EDU-TECH START-UP.

1. SENDING E-MAILS TO THE SCHOOLS: It is one of the most cost-efficient strategy. Once we have the email ids of the targeted schools, we can send them emails explaining the start-up and services being offered. Non-commercial content should be added.

2. USING SOCIAL MEDIA PLATFORMS AND SOCIAL MEDIA MARKETING: It is significant marketing strategy that most people see and recognize. It is completely free and can be mastered with time. It requires posting relevant and syndicating information on social media networks like Facebook, Twitter, Pinterest, Medium, Instagram etc.

3. STARTING A BLOG (CONTENT MARKETING): Being an effective strategy,

business blogs are a leading source of information for the interested audience. Search engines reward valuable information and rank the blogs accordingly. Blogs improve the reputation of a start-up without a professional. This is because only relevant information needs to be updated from time to time.

4. PREPARE BROCHURE: Brochures have the apt information that the targeted audience wishes to have a look at.

5. HOSTING DEMO WORKSHOPS IN INTERESTED SCHOOLS: Organizing demo workshops in interested schools would not only be useful for publicity, but would also give an idea of the approximate number of students who would be interested in utilizing the service being provided.

6. ASK THE CUSTOMERS TO REVIEW AND SHARE THEIR EXPERIENCES: When the school students and their parents have experienced the service provided, they may share their comments. This would prove to be helpful. Also, it would increase the chances of further improvement in the start-up.

7. PUT VIDEOS OF THE START-UP WORKSHOPS ON YOUTUBE: Putting videos of demo classes and workshops on YouTube and other video sharing sites would prove to be helpful for publicizing the start-up.

8. ASK FOR REFERRALS: Being considered one of the best marketing and publicity strategy, people are likely to try a service that is recommended by an acquaintance. Creating a referral program is not that expensive.

7. Financial & Tax Regulations:

In the recent years, the government of India is evolving to define an "Eligible startup" (a startup that is eligible to claim regulatory and tax regulations). A startup is considered so if and only if it is incorporated as a Private Limited company (under the Companies Act, 2013), or registered as a Partnership Firm (under the Partnership Act) or a Limited Liability partnership (under the Limited Liability Partnership Act) in India, and fulfils some conditions:

- Not more than seven years have elapsed from its incorporation/ registration (for an entity in the biotechnology sector, this period is 10 years).
- The turnover of the entity in any financial year since incorporation/ registration has not exceeded INR 250 million.

- The entity is working towards innovation, development or improvement of products or processes or services, or is a scalable business model with a high potential of employment generation or wealth creation.

The Indian government offers certain benefits to Eligible Startups, some which are listed below:

- For eligible Startups formed on or after 01 April, 2016, 100% deduction of profit is available. Further, eligible Startups are free to choose any three years out of a period of first seven years from their incorporation, in which they can avail the tax exemption.
- To boost the startup ecosystem in India, a long-term capital gains exemption up to INR 5 million is provided, if the amount equal to capital gain arising from the sale of capital assets is reinvested in the units of a notified fund set up for Startups for a period of at least three years.
- The Indian tax regime allows the protection of unabsorbed tax losses of Startups incurred in the initial seven years of its operations, as long as all the shareholders in the year of incurrence of loss continue to be shareholders in the Startup company in the year of carry-forward and set-off. Therefore, such protection is available even if the change in shareholding is beyond 49% threshold applicable in other cases.
- The government has exempted the tax being levied on investments above the fair market value in eligible startups. Such investments include investments made by resident angel investors, family or funds which are not registered as venture capital funds. Also, the investments made by incubators above fair market value is exempt.
- The existing provisions u/s 54GB allows the exemption from tax on long-term capital gains on the sale of a residential property if such gains are invested in the small or medium enterprises as defined under the Micro, Small and Medium Enterprises Act, 2006. But now this section has been amended to include exemption on capital gains invested in eligible start-ups also. Thus, if an individual or HUF sells a residential property and invests the capital gains to subscribe the 50% or more equity shares of the eligible startups, then tax on long term capital will be exempt provided that such shares are not sold or transferred within 5 years from the date of its acquisition. The startups shall also use the amount invested to purchase assets and should not transfer asset purchased within 5 years from the date of its purchase. This exemption will boost

the investment in eligible startups and will promote their growth and expansion.

- In another welcome move by government authorities towards encouraging Startups in India, eligible Startups have been excluded from the ambit of angel or premium taxation under section 56(II)(VII-B) of the Income-tax Act, 1961. Therefore, where a Startup issues its shares to any angel investor in consideration of funding received from the investors at a price exceeding the fair market value of the shares of the Startup, any excess over the fair market value (i.e. premium) is not taxed in the hands of the Startup post this amendment.

Currently there are 3 rates of income tax for companies as amended by finance act 2019:

- If company is incorporated in 2019–20 and turnover for that year doesn't exceed 5crores tax rate is 29%
- If company is incorporated after 1st march 2019 and doesn't take deductions under section 10aaa, chapter via, scientific research expenditure 35, investment allowance under section 32, agricultural and skill development allowance.
- Other than above company tax rate is 30%
- In addition to those rates above add surcharge and education and higher education cess

Surcharge: The amount of income-tax shall be increased by a surcharge at the rate of 2% of such tax, where total income exceeds one crore rupees but not exceeding ten crore rupees and at the rate of 5% of such tax, where total income exceeds ten crore rupees. However, the surcharge shall be subject to marginal relief, which shall be as under:

1. Where income exceeds one crore rupees but not exceeding ten crore rupees, the total amount payable as income-tax and surcharge shall not exceed total amount payable as income-tax on total income of one crore rupees by more than the amount of income that exceeds one crore rupees.

2. Where income exceeds ten crore rupees, the total amount payable as income-tax and surcharge shall not exceed total amount payable as income-tax on total income of ten crore rupees by more than the amount of income that exceeds ten crore rupees.

8. Taxation norms, Income Tax Filing and Penalties:

(a) Income Tax Return Filing: The most authentic proof of income earned is the due filing of income tax return. However, there are still many who do not file it as they are unaware of the procedure thus required. Many startups tend to appoint a tax consultant to help them get

various benefits of filing a tax return on time. Let's see what all these benefits may be: But many do not file tax returns as they are unaware of the procedure. Startups should appoint a tax consultant who will help them avail the benefits of filing tax return in time. Some of the benefits include:

Filing timely returns will save one from the assessments of income by the income tax officials.

A business suffering losses can take it forward and then set it off with future profits.

For making an investment, filing income tax return on time is essential. Once the income tax return is filed, tax refunds can be claimed.

The due date for filing this return is September 30 each year. However, it is imperative to note that if your business works in tandem with transfer pricing provisions, this due date changes to November 30 each year.

(b) Penalty for Non-Compliance: Late filing of return will attract interest u/s 234A i.e. if the assesse fails to file income tax return within the time prescribed by Section 139, he/she shall be liable to pay interest at one per cent per month or part of the month from the due date of filing of return to the actual date of filing of its return. In addition to this, a penalty can be levied up to Rs. 5,000 for non-filing of tax returns us 271F. However, please note that the year has to close on March 31 each year for the purpose of filing income tax filings. For that purpose, you only need to file a simple format of Profit and Loss Account and Balance Sheet with the department. Post that you can prepare the return and file it within the due date.

(c) Statutory Audit Compliances: Companies are supposed to get their accounts audited annually. Also, those LLPs having a turnover of more than Rs 40 lakh or Rs 25 lakh contribution in any financial year are required to get their accounts audited annually as per the LLP Act. The LLP Act provides that the partners of such LLP if decided not to get audit of the accounts of the LLP then such LLP shall include in the Statement of Account and Solvency a statement by the partners to the effect that the partners acknowledge their responsibilities for complying with the requirements of the Act and the Rules with respect to preparation of books of account and a certificate in the Form 8. No such exception is provided to companies.

(d) ROC Compliances

Every company, irrespective of having a share capital or not and LLP has to file its financial reports with the corporate affairs ministry on an annual basis. It constitutes a component of 'Annual RoC Filing' mandated by Companies Act, 2013. As a part of annual filing,

Companies incorporated under the Companies Act 2013, are required to file the following e-forms with the RoC:

Form 23AC is to be filed for balance sheet which is applicable to all companies unless there is a special class of the same.

Form 23ACA is to be filed for the purpose of filing the profit and loss account. Form 20B is for filing annual returns by companies having share capital.

(e) Penal Provisions: The penal provisions under the RoC are strict, and enough that there have been companies that have shut down because of the same. The additional fees can be as high as up to a staggering12 times of what the normal fees is. Also, please note that there are certain provisions that have huge penalties on a per day basis on officers and companies too.

Companies Act 2013 also has provisions of hard crust penalties like imprisonment of company directors on grounds of severe non-compliance. As a part of Annual Filing, LLPs are required to file the following e- forms with the RoC:

- Form 8 is to be filed for the purpose of statement and solvency.
- Form 11 is to be filed as regards to annual returns of a LLP.

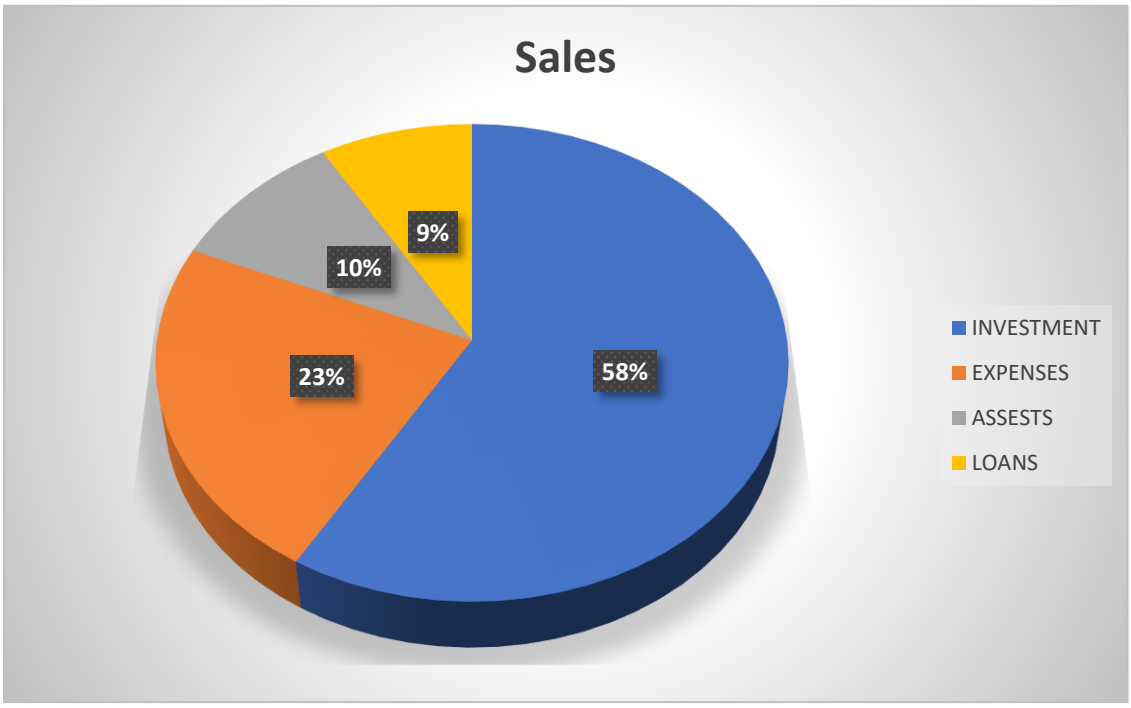
(f) Penal Provisions for Limited Liability Companies: Surprisingly, there are no slabs for LLPs in case of late filing fee. With respect to this, the rule of computation is Rs 100 per day of the delay in requisite filing. The number of days of delay in filing is calculated from the due date of filing to the actual filing date.

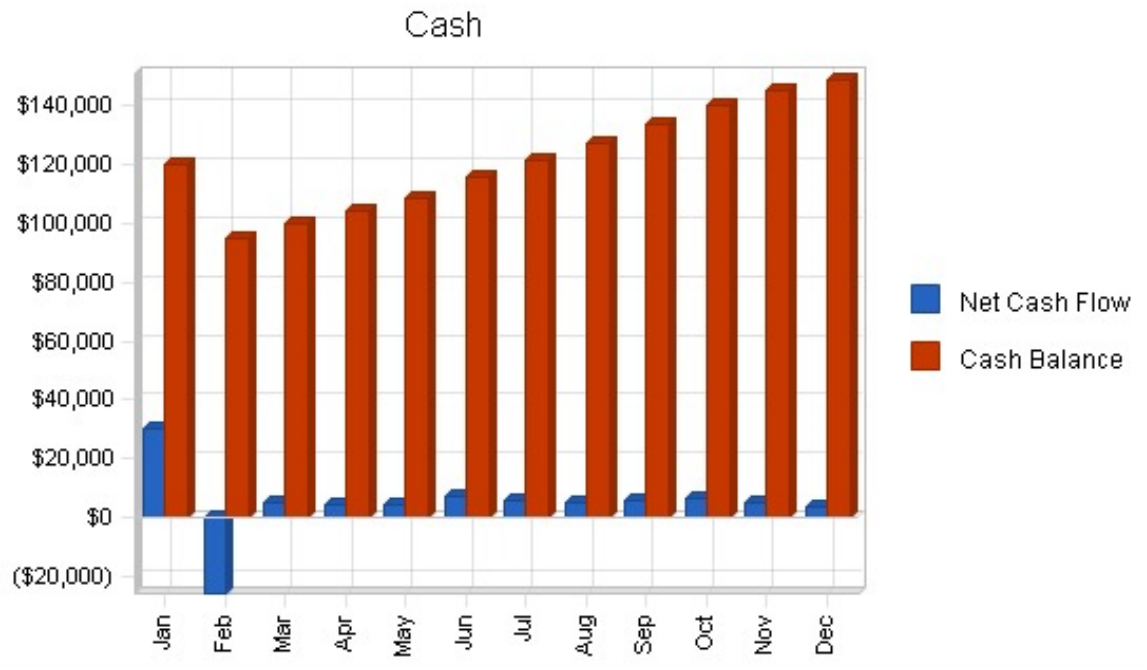
BALANCE SHEET, CHARTS AND SWOT ANALYSIS

1. BALANCE SHEET:

Assets			
Current Assets			
Cash	$148,497	$203,523	$198,415
Accounts Receivable	$29,097	$37,394	$40,341
Inventory	$42,570	$52,277	$53,774
Other Current Assets	$4,000	$4,000	$4,000
TOTAL CURRENT ASSETS	**$224,164**	**$297,194**	**$296,530**
Long-term Assets			
Long-term Assets	$80,000	$80,000	$90,000
Accumulated Depreciation	$36,000	$76,000	$121,000
TOTAL LONG-TERM ASSETS	**$44,000**	**$4,000**	**($31,000)**
TOTAL ASSETS	**$268,164**	**$301,194**	**$265,530**
Liabilities and Capital	2003	2004	2005
Current Liabilities			
Accounts Payable	$63,518	$74,611	$78,318
Current Borrowing	$0	$0	$0
Other Current Liabilities	$0	$0	$0
SUBTOTAL CURRENT LIABILITIES	**$63,518**	**$74,611**	**$78,318**
Long-term Liabilities	$390,000	$360,000	$285,000
TOTAL LIABILITIES	**$453,518**	**$434,611**	**$363,318**
Paid-in Capital	$125,000	$125,000	$125,000
Retained Earnings	($331,000)	($310,354)	($283,417)
Earnings	$20,646	$51,938	$60,629
TOTAL CAPITAL	**($185,354)**	**($133,417)**	**($97,788)**
TOTAL LIABILITIES AND CAPITAL	**$268,164**	**$301,194**	**$265,530**
Net Worth	($185,354)	($133,417)	($97,788)

2. CHARTS:


Sales
9%
10%
23%
58%
INVESTMENT
EXPENSES
ASSESTS
LOANS


Cash
$140,000
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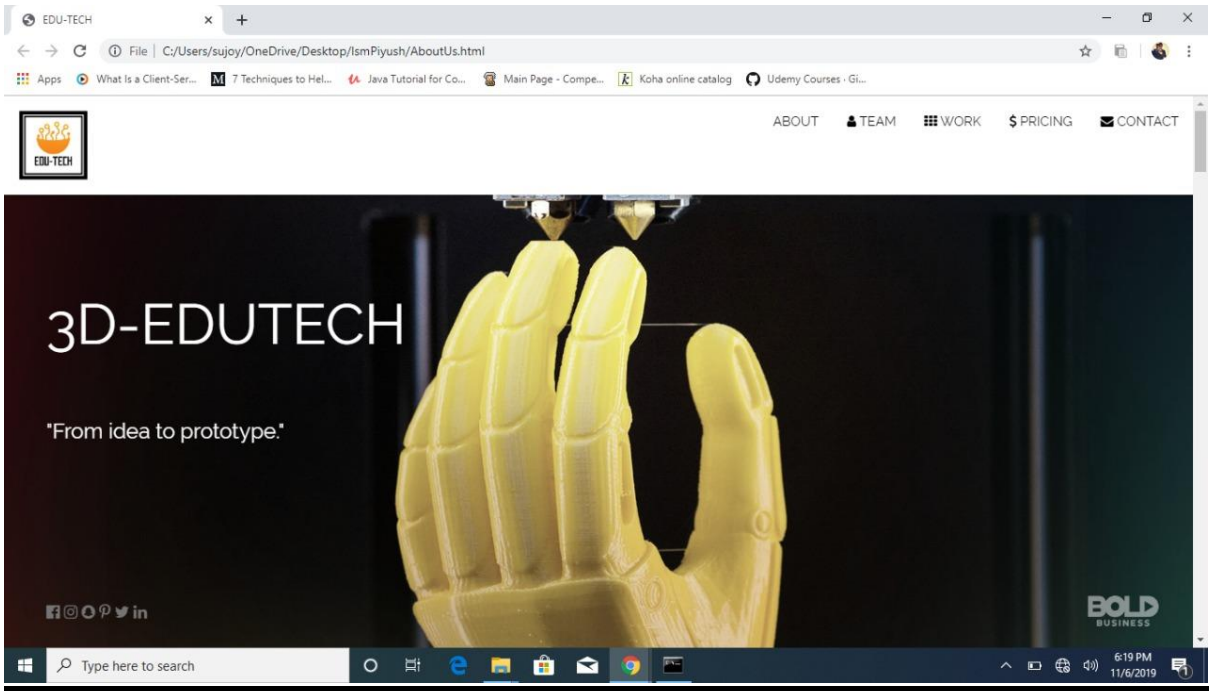
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Net Cash Flow
Cash Balance

3. SWOT ANALYSIS:

Strengths:	Weaknesses:
• Easy to use and simple user interface. • Interactive built-in demo feature by professor in class. • Interactive doodle on slides (uploaded to TopHat platform) by professor. • Mirror presentation between professor and students. • Real time students' response to questions and automatic grade in a classroom.	• Lack of preloaded template for course content: potential time spent by professor to produce interactive and creative content to increase student's engagement. • Lack of support for live links, animations, or embedded videos put in PowerPoint slides (if slides are uploaded to TopHat platform using "File Module" option).
Opportunities:	**Threats:**
• Growing level of awareness and recognition in industry on the importance of interactive teaching and learning method to increase student engagement and learning retention. • Decreasing purchase cost for mobile and electronic device (such as laptop, mobile, tablet, etc). • Better quality and increasing availability of Internet connection in classroom and anywhere.	• Increasing number of strong players providing product with similar value proposition (for e.g., NearPod, Apollo). • Possibility of university regulations for limiting the usage of interactive online learning platform in the classroom.

WEBSITE DESIGN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"From idea to prototype."
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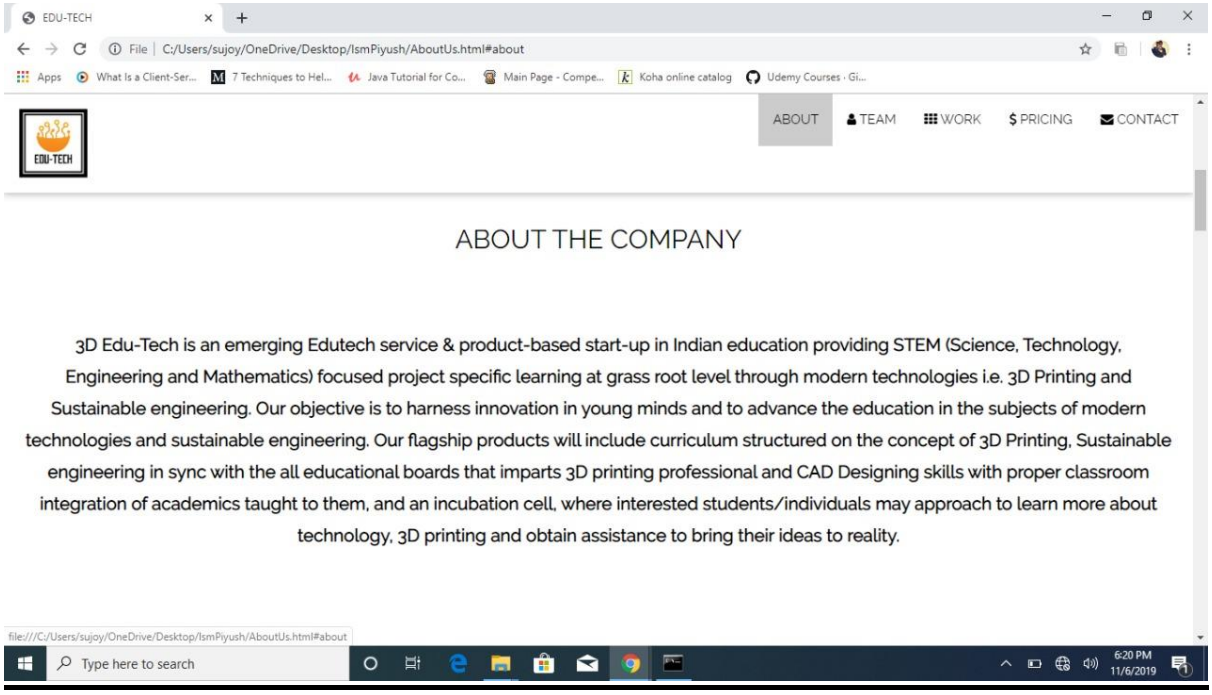
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ABOUT THE COMPANY
3D Edu-Tech is an emerging Edutech service & product-based start-up in Indian education providing STEM (Science, Technology, Engineering and Mathematics) focused project specific learning at grass root level through modern technologies i.e. 3D Printing and Sustainable engineering. Our objective is to harness innovation in young minds and to advance the education in the subjects of modern technologies and sustainable engineering. Our flagship products will include curriculum structured on the concept of 3D Printing, Sustainable engineering in sync with the all educational boards that imparts 3D printing professional and CAD Designing skills with proper classroom integration of academics taught to them, and an incubation cell, where interested students/individuals may approach to learn more about technology, 3D printing and obtain assistance to bring their ideas to reality.
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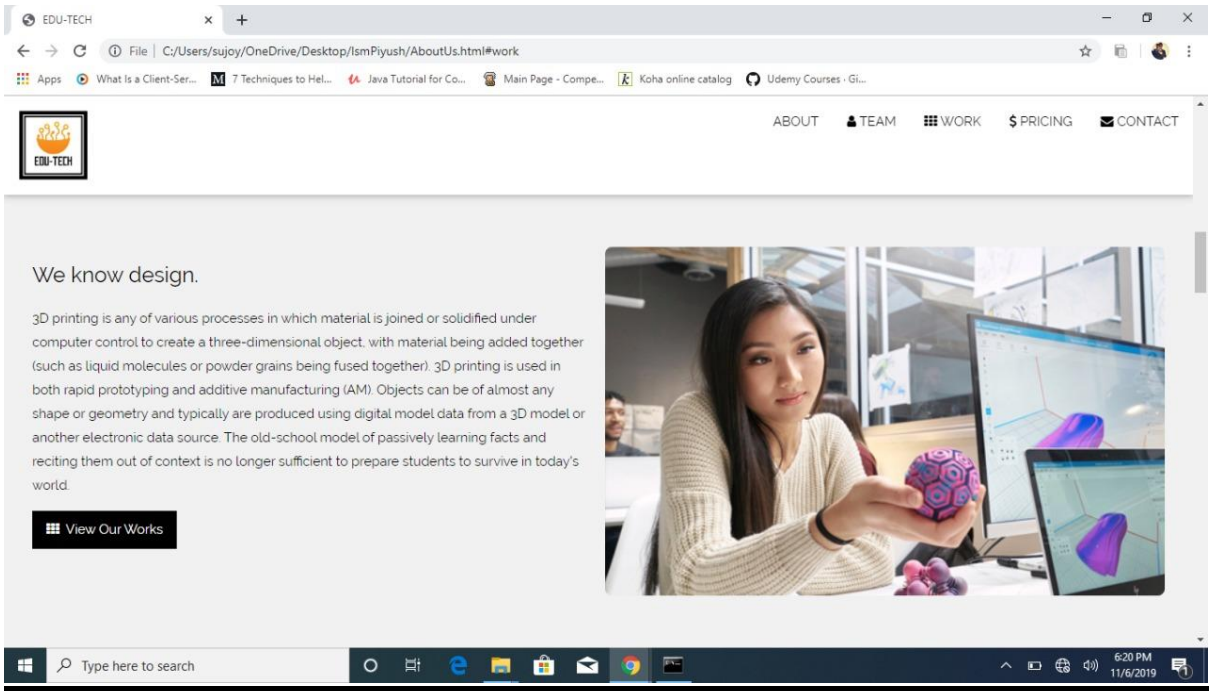
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We know design.
3D printing is any of various processes in which material is joined or solidified under computer control to create a three-dimensional object, with material being added together (such as liquid molecules or powder grains being fused together). 3D printing is used in both rapid prototyping and additive manufacturing (AM). Objects can be of almost any shape or geometry and typically are produced using digital model data from a 3D model or another electronic data source. The old-school model of passively learning facts and reciting them out of context is no longer sufficient to prepare students to survive in today's world.
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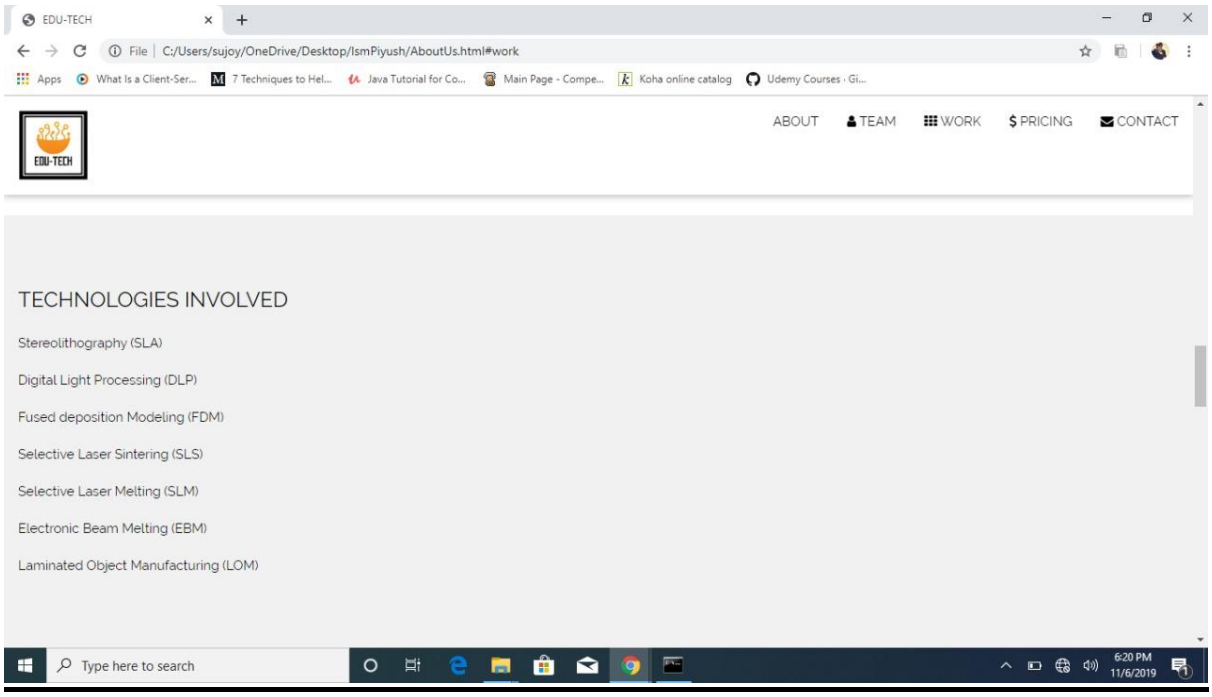
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TECHNOLOGIES INVOLVED
Stereolithography (SLA)
Digital Light Processing (DLP)
Fused deposition Modeling (FDM)
Selective Laser Sintering (SLS)
Selective Laser Melting (SLM)
Electronic Beam Melting (EBM)
Laminated Object Manufacturing (LOM)
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FEASIBILITY REPORT

Looking at all the aspects and requirements for this venture, we can check whether is feasible or not.

SL.NO	FEASABILITY PARAMETER	YES	NO
1	Market Requirment	Y	-
2	Suitable Target Audience	Y	-
3	Funding/ Sponsership	Needed	
4	Opinion of Public/ Consumer/ Client about the idea	Y	-
5	Raw material availability	Y	-
6	Is the raw material suitable for use?	Y	-
7	Is the technology economically viable	-	N
8	Is the Technology readily available?	Y	-
9	Is the technology easy to use?	Y	-
10	Pricing of Product/ Service	Y	-
11	Economic Vaibility	Y	-
12	Competitors in market	None	
13	Marketing Strategy	Y	-
14	Labour/ Management requirement	Needed	

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APPENDIX

MOM (MINUTES OF THE MEETING)

- Made the Business Model Canvas and SWOT Analysis
- Discussed and finalized the financial structure of the startup
- What is the Marketing Strategy for our product?
- Why we are unique? : Discussed and sorted out the final points.
- Discuss the important criteria of focus.
- Discussed about the balance sheets and bar graphs
- Designing of the website.

MEETING WAS HELD IN GDN ITSELF.

WORK CONTRIBUTION:

1. ANJALI RATHORE (17BCM0039):

- She is the CEO of the startup. Her job was to look out the overall functioning of the startup.
- She collected all the market analysis required for the startup.
- She worked for the report and helped in the survey.
- Basically the overall functioning of the startup.

2. HARSHDEEP SINGH (17BCM0044):

- He is the Technical Head for our startup.
- He looked out for all the technical related information needed for 3D-printing.
- He collected all the information for functioning of the 3D printers and helped with all the technicalities involved in the startup
- He also helped in website and poster designing.

3. PIYUSH TRIVEDI (17BCM0016):

- He is the HR of our startup.
- He worked for all the analysis and business canvas model.
- He worked for the website designing.
- He also helped in the survey.

4. ANANT GANDHI (17BCE0526):

- He is the Finance Head for our startup.
- He made the balance sheet and overall budget criteria required for our startup.
- He also worked for SWOT Analysis of the startup.
- He also helped in market survey.

5. RAHIL MITTAL (17BCE2085):

- He is the Public Relation Head of the startup.
- He helped in market survey and analysis.
- His main job was to get the ideas for marketing and how to publicize our startup.
- He also helped in balance sheet.

EACH MEMBER OF THE GROUP CONTRIBUTED IN EVERY FIELD EQUALLY.