29th July 2022

The Board of Directors,

Syrma SGS Technology Limited

Dear Sir(s),

Re: Detailed Project Report

With reference to the Engagement letter dated 06 September 2021, we have prepared the Detailed Project Report (DPR) for Syrma SGS Private Limited ("Syrma"). The DPR is prepared for the onward submission to the Book running lead managers for the purpose of inclusion as part of the 'Object of the offer' section in the red herring prospectus (the "RHP") prepared by the Company in connection with its proposed Initial Public Offer ("IPO") in terms of the requirements of:

(i) Section 26 of Part I of Chapter III of the Companies' Act, 2013("the Act");
(ii) Relevant provisions of the Securities and Exchange Board of India (Issue of Capital and Disclosure Requirements) Regulations, 2018, issued by the Securities and Exchange Board of India, as amended.

The DPR should not be used for any other purpose without our prior written consent.

Accordingly, we enclose herewith the Detailed Project Report of Chennai, Tamil Nadu dated 29th July 2022.

The professional engagement has been carried out based upon our knowledge of business, discussions carried out with the Management and the relevant stakeholders, visits to existing manufacturing plants and a few planned expansion sites, and other supporting documents (technical and otherwise) received from the Management.

The DPR is prepared based upon the current plans of utilization of the funds proposed to be raised through the IPO as at date of DPR and any subsequent change in plans will require an update to the DPR.

We would like to thank the Management and the staffs for their co-operation and courtesies extended to us during the course of our assignment.

Should you require any clarification, we shall be pleased to provide the same.

Thanking you,

For and on behalf of **M/s Rahul R Pujara & Associates**

RAHUL R PUJARA

Digitally signed by RAHUL R PUJARA

Rahul R Pujara, Proprietor

Syrma SGS Technology Limited

Detailed Project Report dated 29-Jul-22 prepared by Rahul R Pujara & Associates in connection with the project proposed to be undertaken by our Company in Chennai in Tamil Nadu, India.

Prepared by:

Rahul R Pujara & Associates

New 57, Old 30, Katchaleeswarar Agraharam Street,

Parrys, Chennai - 600001

Contents

1. Brief About the Company

Syrma SGS Technology Limited ("Syrma" or "the Company"), was established in Jan 2005 in the Madras Export Processing Zone (MEPZ), a Special Economic Zone (SEZ), situated in Chennai. The Company is a leading technology-focussed engineering and design company engaged in turnkey electronics manufacturing services ("EMS"), specialising in precision manufacturing for a variety of end-use industries Company was incorporated in 2004 when it commenced manufacturing of magnetics and memory modules. In November 2005, it commenced manufacturing of RFID products and subsequently progressed into manufacturing of PCBA products in April 2007. It leverages our various strengths to consolidate and bring down the cost of raw materials and components, and explore alternative components, vendors, materials and processes to reduce product cost and bring faster products to market. Their concept of co-creation initiative enables to design products for customers from an idea or concept that they initiate, and give them the preliminary prototypes for their testing and trials. Once the design and quality are approved, company help them to seamlessly transition to volume manufacturing with high-speed state-of-the-art manufacturing facilities. Company have continuously diversified product portfolio to keep pace with developments in technology. In addition, company's continued focus on technology innovation and design infrastructure have also enabled to undertake design and engineering services for customers over time.

Company currently operates through eleven manufacturing facilities spread across four states namely Tamil Nadu, Karnataka, Himachal Pradesh, Uttar Pradesh and Haryana. Company's manufacturing facilities in Tamil Nadu are located in a special economic zone, which allow us to avail certain tax and other benefits in respect of the products manufactured out of these facilities. Manufacturing facilities are strategically located in Tamil Nadu and Karnataka, which allows the company to cater to its customers in south India and our export requirements (in light of the proximity of these facilities to the respective city airports and Chennai port). In addition, manufacturing facilities in Himachal Pradesh and Haryana enable company to cater to its customers in north India. Manufacturing facility in Gurgaon, Haryana, which caters exclusively to export customers, has been set up under the Electronic Hardware Technology Park scheme, allows to avail various tax benefits. Not far from Delhi Airport and with better road connectivity Ghaziabad (Uttar Pradesh) plant specialises in manufacturing of RFID inlay tags. Further details on the SMT manufacturing process and facilities, are provided under the Current Business operations section.

In addition to existing manufacturing, and engineering and design services offerings, company have also started 'zone of autonomous creation' in 2019 pursuant to which company provided quick prototyping services where a design concept is provided to the company by its customers and company help create an early form of the final product. Company has a dedicated line for PCB assembly with an autonomous team that has procurement, process, quality, and NPI (new product introduction) engineers independent of manufacturing facilities.

2. Current Business Operations

Company currently operates through eleven strategically located manufacturing facilities in north India (i.e. Himachal Pradesh, Haryana and Uttar Pradesh) and south India (i.e. Tamil Nadu and Karnataka). Pan-India presence enables us to efficiently cater to the requirements of our customers in north and south

India. The Company offers competitive advantage to the customers as compared to other competing locations like China in terms of:

- Competitive cost
- In house Design & Development capability
- Well Developed Supply Chain for short delivery timelines.
- Competitive prices and ease of doing business
- Quick Custom Clearance for Exports
- Proximity to Port and Airport, thus lower logistical costs.

During the recent years, the Company had done business in the following segments of industry for its overseas customers:

- Telecom and Wireless systems
- Medical Electronics
- Radio Frequency Identification devices
- IoT devices
- Automotive Electronics
- Switched Mode Power Supply (SMPS)
- Electronics Hardware & Appliances.

Some of the industries that Syrma is serving includes, Aerospace, automotive, consumer durables, industrial, renewable energy, power, opto-electronics, smart homes, software, telecom, etc.

The Company proposed to invest Rs. 5,712.15 million as part of the Capital expenditure in 4 projects, across four different locations of the country. Out of Rs. 5,712.15 million budgeted CAPEX, the Company has budgeted a total CAPEX of Rs. 1573.35 million (27.54% of the Rs. 5,712.15 million proposed budgeted CAPEX) for its Project at Chennai, Tamil Nadu. The Capital expenditure is spread across years for which all the details is given in the following detailed project report.

The summary of the entire investment in Capital Assets proposed to be made across projects as part of utilisation of the proceeds of the issue is as follows:

Project	Brief	Amount deployed as on 05 – Jul - 22	Amount proposed to be utilized		Total	Contribution %
			FY 22-23 (From 06-Jul-22)	FY 23-24		
Project Chennai, Tamil Nadu(A)	Development of R&D lab, expansion of EMS manufacturing facility	198.98	1001.44	372.93	**1573.35**	27.54%
Project Manesar and Bawal, Haryana (B)						
Manesar, Haryana	Purchase of premises for	667.52	756.21	823.94	**2247.67**	39.35%

Project	Brief	Amount deployed as on 05 – Jul - 22	Amount proposed to be utilized		Total	Contribution %
			FY 22-23 (From 06-Jul-22)	FY 23-24		
	establishment of EMS manufacturing facilities					
Bawal, Haryana	Development and construction of premises for setting up of SMT lines operations	45.59	470.53	70.24	**586.36**	10.27%
Project Hyderabad, Telengana (C)	Development of factory for setting up EMS manufacturing facilities	-	125.60	372.41	**498.01**	8.72%
Project Hosur, Tamil Nadu (D)	Development and construction of premises for setting up of SMT lines operations	-	261.69	545.07	**806.76**	14.12%
Total (A)+(B)+(C)+(D)		**912.09**	**2615.47**	**2184.59**	**5712.15**	**100%**

The Promoters, Promoter Group, Directors, Key Managerial Personnel and Group Companies do not have any interest in the proposed purchase of building, leasing of land, execution of civil works, acquisition of plant and machinery, or in the entities from whom we have obtained quotations in relation to such activities, except for Sandeep Tandon being the Director of J T Holdings Private Limited from whom the land and building is to be leased for Project Hyderabad.

In respect of the proposed capital expenditure, the Company has not made payments for 95.72% of the plant and machinery required and proposed to be purchased for these projects as on 05-Jul-22. No second-hand or used machinery is proposed to be purchased out of the net proceeds from the issue of shares.

Project Chennai, Tamil Nadu

Background of the Project:

The company has its Manufacturing facility in Madras Export Processing Zone (MEPZ), Chennai.

The proposed Capital expenditure at Chennai has been segregated around 4 sub-projects. The 4 sub-projects in Chennai are as follows:

1. Developing a Research & Development laboratory
2. Developing of EMS facility for manufacturing large scale IT products by setting up Surface-Mount Technology (SMT) Lines & Equipment for expansion in existing facilities and developing new manufacturing premises and facilities.
3. Setting up Port Base station antenna manufacturing Unit in the new building premises.

The CAPEX split and the implementation schedule of each of the sub-project in the Chennai division is provided below:

Amounts in millions

S. No.	Location	Brief about the expansion	Amount deployed as on 05-Jul -22	FY 22-23 (From 06-Jul-22)	FY 23-24	Total
New operational / manufacturing facilities						
1	Chennai (SEZ)	Developing a new & upgraded state of art research & development laboratory	-	60.00	31.15	**91.15**
		Purchase of Building and Civil expenditure towards renovation of building for R&D building	148.23	189.63	10.04	**347.90**
		Sub-total	**148.23**	**249.63**	**41.19**	**439.05**
2	Chennai (SEZ)	Developing and setting up new premises and SMT lines for manufacturing IT Products (4 SMT lines)	50.75	390.6	147.13	**588.53**
		Expansion of existing manufacturing facilities by setting up additional SMT lines & equipment (3 SMT lines)	-	264.83	88.28	**353.11**
		Port Base station antenna manufacturing Unit	-	96.33	96.33	**192.66**
		Sub-total	**50.75**	**751.81**	**331.74**	**1134.30**
Total			**198.98**	**1001.44**	**372.93**	**1573.35**

I. Developing a Research & development laboratory:

The Company is currently operating a reasonable sized Research & Development (R&D) laboratory in the Company premises with a capacity of 25 employees. The Company designs prototypes for a product based upon design concept/customer requirement, post which the same is mass manufactured.

The Company proposes to expand the facility and widen the scope of its activities. With the expansion in the lab, the Company is developing a new and upgraded state of the art research & development laboratory with a dedicated focus on innovation, product re-engineering and cost reductions. The research unit includes independent research and development for products in the RFID and the non-RFID category. The project involves upgrading to the latest software licenses / technology equipment with a capacity of a minimum of 100 employees within the next 3 financial years for the purpose of design and development operations on the prototypes of such products.

A. Brief about operations

The research and development lab are developed with a focus on collaborative design and co-creation with customers. The Company is proposing to offer two broad ranges of business in the R&D lab:

1. The customers / partners shall provide the idea and the initial inputs on the product. The Company and the customers shall then work collaboratively to design the initial prototype of the product. The R&D lab of the Company shall develop a prototype of the product, after collaboratively working with the customers. The intellectual property (IP)/ patent of the design shall be transferred to the Customer.

2. The Company shall also internally design certain standalone prototypes and products which will be offered to various customers. The mass production of the products will be done by the Company based on the customers requirements and orders. The IP ownership of the Product in such cases remains with the Company.

3. Providing focused concept co-creation support and partnership with external parties for new designs and new developments in RFID and non-RFID prototypes / products will be a key value adding activity of such R&D lab

4. The R&D unit shall serve as a value-added service to the customer to provide a single point end to end facility for customers where along with the designing services, support for subsequent product mass manufacturing, testing and other back-end operations such as box build, etc. shall also be provided.

B. Proposed Expenditure on new building premises

The Company has budgeted an expenditure of around Rs. 439.05 million for setting up a state-of-the-Art Research and development in the Special Economic Zone in Chennai in MEPZ.

The proposed CAPEX allocation for expenditure on land & building premises to house R&D and SMT Lines against each category along the timeline is listed below:

Particulars	Estimated deployment of funds (Rs. In millions)			
	Amount deployed as on 05-Jul-22	FY 22-23 (From 06-Jul-22)	FY 23-24	Total
Capital Expenditure – Project Chennai, Tamil Nadu				
Building	80.88	0.52		**81.40**
Improvements & Interior Development	67.35	189.11	10.04	**266.50**
Research & Development equipment and software		60.00	31.15	**91.15**
Total expenditure for new building purchase and setting up R&D lab equipments	**148.23**	**249.63**	**41.19**	**439.05**
Total	**439.05**			**439.05**

The Expenditure shall be incurred on broad three categories:

Building – The Company has Leased around 1.81 acres of land (7,274 sq meters). The building (**"FAMTEX"**) is situated at a distance of 1.5 kms from the unit of the Company in Chennai, SEZ (Unit – I). After an online auction process conducted by MEPZ, SEZ Authority on 9th November 2021, the Company has successfully won the auction and has been approved to buy the land. The constructed building on the leased land premises, is proposed to house the new Research and development laboratory and PCBA manufacturing facility. The Company has entered into a lease agreement for the Plot No. B-15 and C-4, with Development Commissioner and Chairperson, MEPZ Special Economic zone Authority on 03-Mar-22. The costs of the proposed building premises (FAMTEX) is as follows which is supported by valuation report provided by MEPZ:

Details	Rs. Millions
Building B-15 (A)	38.15
Building C-4 (B)	30.81
Sub-Total I = (A)+(B)	**68.96**
Stamp duty (8%) (D)	5.52
One time Development Charges (F)	3.84
Sub Total (G) = (D+E+F)	**78.32**

"GOKULDAS" Project – The company proposes to acquire 16,622 sq. meter of land, building situated in the MEPZ-SEZ Chennai. This location is situated at distance of less than 0.5 kms from existing unit of Famtex and other 2 units in Chennai MEPZ-SEZ. After an online auction process conducted by MEPZ, SEZ Authority on 9th February 2022, the Company has successfully won the auction. The constructed building on the leased land premises, is proposed to be a PCBA manufacturing facility. The company has incurred an aggregate of Rs. 8.78 million of development charges and security deposit and non refundable advance rent as detailed below.

C. Location & it's viability

The address of the plots for establishing the R&D lab are and housing PCBA manufacturing facility:

The new building premises is set up on land with two plots, the address of each of them is as follows:

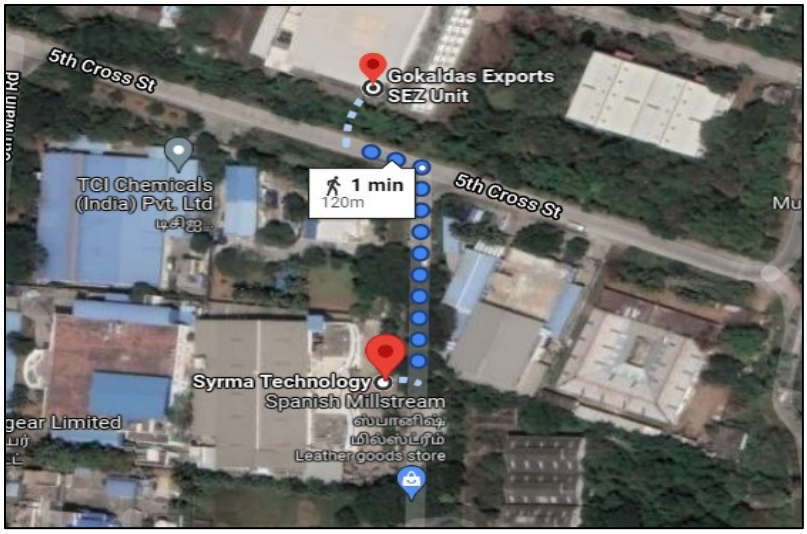
Plot no. B-15, Phase-I, MEPZ SEZ, Tambaram, Chennai – 600045

Plot No. C-4, Phase-I, MEPZ SEZ, Tambaram, Chennai – 600045

Picture of the location:

The address of the plot proposed to be acquired is:

Plot No.D6, Phase II, MEPZ SEZ, Tamabaram, Chennai-45, Tamil Nadu



Picture of the location:

- **Civil Cost** – Since the land has a building constructed in its premises, majority of the Civil works carried out includes site development, development of infrastructural facilities including repairing of structure, roof, doors and windows, making safety equipment fully and effectively functional, ensuring efficient drainage and sewerage system, construction of laboratories, fully air-conditioned infrastructure with clean rooms etc. The Company has proposed to invest an amount of Rs. 347.90 million for the purpose of Civil and infrastructural development. The broad breakup of such expenditure, based on the quotation received from the Contractor.

  Research & development equipment – Upgraded research and development equipment and the latest software and licenses is proposed to be purchased by the Company for the development and setting up of the R&D lab. An amount of Rs. 91.15 million, has been estimated for investment in the R&D equipment. The detailed breakup of the machinery and equipment is provided below.

Note on Expenditure Incurred as on 05-Jul-22:

As on 05-Jul-22, the Company has already incurred certain costs and has paid advances towards the building costs of the project. Summary and other details are listed in the table below:

Main Summary of Expenditure incurred on Building:

S. No.	Particulars	Amount in INR Millions
1	Payment towards acquisition of FAMTEX Building	72.10
2	Payment towards project Gokuldas	8.78
	Total	**80.88**

Famtex Project:

S. No.	Particulars	Amount in INR Millions
1	Payment towards acquisition of FAMTEX Building (Plot No. B15 & C4)	68.26
2	Payment towards Development Charges of FAMTEX Building (Plot No. B15 & C4)	3.84
	Total	**72.10**

Gokuldas Project:

S. No.	Particulars	Amount in INR Millions
1	Payment towards Development Charges of Gokuldas	8.78
	Total	**8.78**

D. Location & it's viability

Viability of the location:

(1) The proposed location is in a Special Economic Zone (SEZ). The primary benefits of SEZ like zero taxes, Govt. support, ease of doing business, availability of skilled manpower, availability of power etc. are available to the Company.
(2) The proximity to existing manufacturing plants ensures integrated functioning & lower logistical costs.
(3) Since the proposed location is situated in closed proximity to existing plants, access and personal involvement of Senior Management team based at existing 2 Manufacturing plants is readily available ensuring faster and smoother execution of all projects.
(4) Since the plant is situated in a dedicated Industrial Zone other local issues surrounding noise pollution, disturbance from local civil issues are not faced by the Company ensuring a stable, uninterrupted work flow.

E. Breakup of Civil cost expenditure

The Company has issued purchase order an expenditure of around, Rs. 157.66 million for the purpose of renovation of the building premises and development of infrastructure for setting up the Research and development lab. Additionally, quotations have been obtained for civil work amounting to Rs. 108.84 million. The Quotations are valid for a period of 6 months from the date of the quotation. The breakup of the Civil cost expenditure based on the purchase order issued till the date of DPR are listed below.

S.No.	Nature of Work	Amount in Millions	Name of Vendor	Date of Purchase Order/quotations
1	Fabriction & Erection	1.55	Alfa PEB Limited	21-Feb-22
2	PEB building as per Conceptual Drawing	11.92	Alfa PEB Limited	21-Feb-22
3	Networking & related equipments	1.54	Aster Comfort Designs Pvt Ltd	18-Apr-22
4	UPS & Batteries	1.06	Atandra Energy Private Limited	24-Mar-22
5	Air Showers & Access Control Systems	1.43	Biotek Airflow Systems	26-Apr-22
6	Generators	0.13	En Tech Consultants	18-Apr-22
7	Transformer	1.45	I.P.L Products	15-Feb-22
8	AHU units	10.86	Johnson controls-Hitachi Airconditioning India Ltd	21-Feb-22
9	Passenger & Goods Lifts	7.53	Johnson Lifts Private Limited	22-Mar-22
10	Interior & Building work	85.14	KG Bright Enterprises India Private Limited	15-Feb-22
1’	CCTV's & other security equipments	0.97	Palaniappa Electronics	29-Mar-22
12	DG Set	0.57	Powerica Ltd.	14-Feb-22
13	DG Set	2.67	Powerica Ltd	15-Feb-22
14	Networking, cables and other IT equipment	2.39	RF Info Systems Private Limited	8-Mar-22
15	Electrical Equipments, Earth pits & other related works	5.79	Sri Kumaran Electricals	15-Feb-22
16	Electrical works, Safety certificate, cable laying, drawings & other electrical works	4.30	Sri Kumaran Electricals	15-Feb-22
17	Bandwidth & Broadband Related IT equipments	0.80	Supreme Computers India (P) Ltd	15-Mar-22
18	Electrical Panels	0.76	System Control	15-Feb-22
19	Fire Alarm Systems & Installation services	1.16	Usha Fire Safety Equipments (P) Ltd	22-Apr-22
20	Communication servers, Routers & Installation charges	0.24	Yercaud Electronics Pvt Ltd	17-Mar-22

S.No.	Nature of Work	Amount in Millions	Name of Vendor	Date of Purchase Order/quotations
21	AHU, Air distribution & VRF installation	11.75	Yudek Engineering Pvt. Ltd	21-Feb-22
22	ZECO AHU Model	3.66	Zeco Aircon Limited	15-Feb-22
	Sub -total (Purchase order issued)	**157.66**		

The breakup of the Civil cost expenditure based on the quotations obtained from the relevant vendors till the date of DPR are listed below.

S.No.	Nature of Work	Amount in Millions	Name of Vendor	Date of Purchase Order/quotations
1	Roofing Work	28.27	TSO Design Commune Private Limited	21-Apr-22
2	Exterior Works	16.50	TSO Design Commune Private Limited	21-Apr-22
3	Other Civil works	64.07		
	Sub-Total (Quotations availed from the Relevant Vendors)	**108.84**		

The building construction includes the cost incurred for the development of the clean room for EMS manufacturing facility, electrical fittings, false ceiling, Mezzanine level, transformer and generators, power backup facility, etc.

Note on Expenditure Incurred as on 05-Jul-22:

As on 05-Jul-22, the Company has already incurred certain costs and has paid advances towards the building costs of the project. Summary and other details are listed in the table below:

S. No.	Particulars	Amount in INR Millions
1	Payment towards Civil Work	67.35
	Total	**67.35**

F. Breakup of the research and development expenditure

The Company shall procure various equipment and machineries for the purpose of development of R&D lab. No second-hand or used machinery is proposed to be purchased out of the investment amount considered for Project cost. Valid quotation for all machinery and equipment, from the vendor has been considered for arriving at the cost of equipment and machineries, and is as follows:

Description	Tentative manufacturer / supplier name	Qty	Unit	Unit price (Rs.)	Amount (Rs. in millions)	Contractor or Vendor	Date of Quotation
HF RFID Long Range Reader	Feig or equivalent	2	set	350,000	0.70	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
HF RFID Mid-Range Reader	Feig or equivalent	2	set	50,000	0.10	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
HF RFID Reader for ILT	Opt RFID or equivalent	1	pc	40,000	0.04	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
UHF RFID Long Range Reader	Feig or equivalent	2	set	300,000	0.60	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
UHF RFID Hand-Held Reader	Feig or equivalent	4	set	80,000	0.32	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
LF RFID Small Reader	EM or equivalent	3	sets	100,000	0.30	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Tag Tester	Iberwave or equivalent	3	set	300,000	0.90	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Tag Performance Analyzer	Voyantic or equivalent	1	set	3,490,000	3.49	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
1 x ASR550 Reader board ISO11784/85, 12-24 Volt with Auto-tuning	Giotex or equivalent	1	set	70,000	0.07	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
LF RFID reader / writer for Hitag	Chainway or equivalent	1	set	40,000	0.04	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
AutoCad 2021 with 1 yr support for 3 years	Auto Desk	2	pc	300,000	0.60	Chengyongsheng precise electronics	23-Apr-22

Description	Tentative manufacturer / supplier name	Qty	Unit	Unit price (Rs.)	Amount (Rs. in millions)	Contractor or Vendor	Date of Quotation
						(Hongkong) Co., Limited	
Creo Engineer 1 (ProE) for 3 years	PTC	1	pc	400,000	0.40	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Solidworks standard with 1 yr support for 3 years	Dassault System	1	pc	500,000	0.50	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Finite Element Analysis - Mechanical, CFD-Flo	Ansys	1	pc	3,750,000	3.75	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Gerber Editer - GCPreveu Plus 3 years	Graphi Code	2	pc	150,000	0.30	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
CAM350	Downstream Tech	2	pc	200,000	0.40	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Viewmate PRO	Pentalogix	2	pc	50,000	0.10	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Mentor Graphics – PADS Schematics and Layout 3 years	Mentor Graphics	2	pc	450,000	0.90	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Cadence – Orcad PCB designer Standard 3 years	Cadence	2	pc	240,000	0.48	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Cadence – Allegro PCB designer 3 years	Cadence	1	pc	600,000	0.60	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Mentor Graphics – Hyper Lynx SI (for signal Integrity) for 3 years	Mentor Graphics	1	pc	240,000	0.24	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22

Description	Tentative manufacturer / supplier name	Qty	Unit	Unit price (Rs.)	Amount (Rs. in millions)	Contractor or Vendor	Date of Quotation
Altium PCB Pro 3 years	Altium	1	pc	720,000	0.72	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Visual Studio Professional with MSDN for 3 years	Microsoft	5	pc	225,000	1.13	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
KEIL MDK ARM standard Edition, Single User, Node Locked	ARM/KEIL	2	pc	400,000	0.80	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
KEIL MCB4357 - NXP LPC4300 Eval Board	ARM/KEIL	1	pc	40,000	0.04	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Eval platform DM6446 for Davinci (TMDS EVM 6446)	Texas Instruments	1	pc	200,000	0.20	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
TI Emulator - TMDSEMU560V2STM	Texas Instruments	1	pc	100,000	0.10	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Atollic TS-ARM-PRO-WIN-STD	Atolic/Trusstudio/segger	1	pc	200,000	0.20	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Segger 1.23.01.20 / 1.08.01.20	Atolic/Trusstudio/segger	1	pc	250,000	0.25	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
TMDSSK3358 starter Kit	Texas Instruments	1	pc	25,000	0.03	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
XEVMK2EX - K2E Development Board	Texas Instruments	1	pc	150,000	0.15	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Eval Module for OMAP35X (TMDS EVM 3530)	Texas Instruments	1	pc	150,000	0.15	Chengyongsheng precise electronics	23-Apr-22

Description	Tentative manufacturer / supplier name	Qty	Unit	Unit price (Rs.)	Amount (Rs. in millions)	Contractor or Vendor	Date of Quotation
						(Hongkong) Co., Limited	
IAR Embedded Workbench for ARM	IAR	3	pc	500,000	1.50	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
ST Micro Development Platform	ST Micro	3	pc	300,000	0.90	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Wire Tensioner	Tensitron or equivalent	1	pc	62,000	0.06	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Tension Measurement System	Tensitron or equivalent	1	pc	92,000	0.09	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Coil winding machine	TNK or equivalent	1	pc	500,000	0.50	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Pull Strength Tester	Keystroker/Chatillion or equivalent	1	pc	20,000	0.02	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Precision Coil winding machine	Nippon Serbig	1	pc	750,000	0.75	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
15 MHz LCR Meter	Wayne Kerr or equivalent	1	pc	1,400,000	1.40	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
200KHz LCR meter with DC bias	Microtest or equivalent	1	pc	550,000	0.55	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
HiPot Tester AC	Agronic or equivalent	1	pc	12,000	0.01	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22

Description	Tentative manufacturer / supplier name	Qty	Unit	Unit price (Rs.)	Amount (Rs. in millions)	Contractor or Vendor	Date of Quotation
HiPot Tester DC	Sigma or equivalent	1	pc	13,000	0.01	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Surge Tester	Microtest or equivalent	1	pc	375,000	0.38	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Micro ohm Meter	Extech or equivalent	1	pc	200,000	0.20	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Insulation Resistance Tester	GWInstek or equivalent	1	pc	125,000	0.13	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
RLC Meter, 100KHz	Microtest or equivalent	3	pc	110,000	0.33	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
High Voltage Probe	Rishab or equivalent	2	pc	7,500	0.02	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Digital Multimeter - Fluke 115 TrueRMS or equivalent	Fluke or Equivalent	4	pc	15,000	0.06	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Milliohm Meter	Lutron or Equivalent	1	pc	42,000	0.04	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Digital Multimeter - with Capcitance and Temperature Fluke 117	Fluke or Equivalent	1	pc	18,000	0.02	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Regulated Multi-output Desktop power supply	Aplab	5	pc	30,000	0.15	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Wave Form Generator 80 MHz BW, 2CH	Keysight 33612A or equivalent	1	pc	450,000	0.45	Chengyongsheng precise electronics	23-Apr-22

Description	Tentative manufacturer / supplier name	Qty	Unit	Unit price (Rs.)	Amount (Rs. in millions)	Contractor or Vendor	Date of Quotation
						(Hongkong) Co., Limited	
Mixed Signal Oscillioscope 100 MHz 4 CH	Tektronix MSO2004B or equivalent	3	pc	300,000	0.90	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Current Probe	Rogowski PEM-CWT015 or equivalent	1	pc	220,000	0.22	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Vibration Analyzer 0.1m/sec mini	Any	1	pc	150,000	0.15	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
3 Phase Power Analyzer	Voltech PM300 or equivalent	1	pc	300,000	0.30	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
High Voltage DC load 400V 20A	Sunmach or equivalent	1	pc	300,000	0.30	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Digital Storage Oscillioscope, Isolated, 4ch	Tektronix TBS1000C or equivalent	3	pc	150,000	0.45	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
RF Spectrum Analyser 9KHz-7.5GHz	Rohde &Schwarz FPL1006or equivalent	1	pc	2,500,000	2.50	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Network Analyser 3KHz-3GHz	Rohde &Schwarz ZNLE6 or equivalent	1	pc	1,700,000	1.70	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Vector Voltmeter	Agilent 8508A or equivalent	1	pc	400,000	0.40	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
RF Signal Generator 6 GHz	Tektronix TSG4106A or equivalent	1	pc	1,900,000	1.90	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22

Description	Tentative manufacturer / supplier name	Qty	Unit	Unit price (Rs.)	Amount (Rs. in millions)	Contractor or Vendor	Date of Quotation
Communication Protocol Analyzer	Anritsu/Lecroy or equivalent	1	pc	1,500,000	1.50	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Anechoic Chamber	Custom	1	pc	540,000	0.54	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Programmable AC Source	Chromo 61600 or equivalent	1	pc	450,000	0.45	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Programmable DC Source	Chroma 62012P-80-60 or equivalent	1	pc	400,000	0.40	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Pressure Test Chamber	ASLI PCT-35	1	pc	700,000	0.70	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Thermal and Humidity Chamber	Elmec or equivalent	1	pc	700,000	0.70	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Vaccum Impregnating machine	Sanshine or equivalent	1	pc	300,000	0.30	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Smart Tweezer	Analog equipment or equivalent	1	pc	30,000	0.03	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Barcode scanners	Honeywell or equivalent	3	pc	20,000	0.06	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Profile Projector	Mitutoya or equivalent	1	pc	850,000	0.85	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Digital Video Microscope	Electrosolve or Equivalent	1	pc	400,000	0.40	Chengyongsheng precise electronics	23-Apr-22

Description	Tentative manufacturer / supplier name	Qty	Unit	Unit price (Rs.)	Amount (Rs. in millions)	Contractor or Vendor	Date of Quotation
						(Hongkong) Co., Limited	
Digital Magnifier with USB	Electrosolve or Equivalent	1	pc	25,000	0.03	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Camera with Optical and Digital Zoom	Sony/Nikon or equivalent	1	pc	30,000	0.03	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Stereo microscope with 40x magnification	Amscope/Mitutoyo or equivalent	1	pc	50,000	0.05	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Illuminated Magnifier	Lensel or equivalent	2	pc	5,000	0.01	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Digital Vernier Calipers upto 200 mm	Mitutoya or equivalent	3	pcs	12,000	0.04	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Digital Vernier Calipers upto 300 mm	Mitutoya or equivalent	1	pcs	25,000	0.03	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Digital Micrometer	Mitutoya or equivalent	1	pc	12,000	0.01	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Digital Precision Micrometer	Master Feeler Gauge or equivalent	1	sets	30,000	0.03	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Desktop PC	Dell or Equivalent	10	pc	50,000	0.50	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Laptop PC	Dell or Equivalent	100	pc	50,000	5.00	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22

Description	Tentative manufacturer / supplier name	Qty	Unit	Unit price (Rs.)	Amount (Rs. in millions)	Contractor or Vendor	Date of Quotation
PC Server Stations	Dell or Equivalent	5	pc	150,000	0.75	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
High-end configuration PCs/Laptops for CAD and software	Dell or Equivalent	10	pc	75,000	0.75	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
M2M Excellence & Innovation Lab		1	Set	10,000,000	10.00	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Precision 3D printer Industrial Grade		1	Pc	15,000,000	15.00	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Automotive Fault Insertion Rack with LABCAR for HIL, Aspice	ETAS/ Dspace	1	set	10,000,000	10.00	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
NI Multiplexer Rack 16 CH Digital I/O, 16VH Analog I/O, LIN, CAN, Camera	NI	1	set	5,000,000	5.00	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Automotive Electronic Load Unit for HIL, Aspice	ETAS/ Dspace	1	set	3,000,000	3.00	Chengyongsheng precise electronics (Hongkong) Co., Limited	23-Apr-22
Total - Amount proposed to be invested in R&D equipment					**91.15**		

The above-mentioned expenditure is excluding taxes, since the civil operations and project is to be undertaken in the SEZ unit, which is exempt from indirect taxes.

II. Installation of SMT lines for manufacturing EMS & IT products:

A. Background

The Company has EMS Business set up in Chennai, Bangalore and Bawal. However, considering the demand from customers, growth plan of the Company, the need for additional capacity is felt by the Company. Considering the potential demand from the customers and the growing market potential, the Company is considering setting up additional SMT lines for expanding the overall manufacturing capacity of the Company.

The Company currently has 3 SMT lines across its manufacturing units in Chennai.

B. Expenditure on expansion of SMT lines

The Company has budgeted an expenditure of around Rs. 941.64 million for setting up SMT lines. Details and timelines of the same is listed below:

Amount in Rs. Millions

S. No.	Project	Nature of Expenditure	Amount deployed as on 05-Jul-22	FY 22-23 (From 06-Jul-22)	FY 23-24	Total
1	Developing a new Electronics Manufacturing facility by setting up SMT Lines & Equipment (Chennai SEZ)	Machinery Purchase	50.75	390.65	147.13	**588.53**
2	Setting up additional SMT Lines & Equipment (Unit – II)	Machinery purchase	-	264.83	88.28	**353.11**
Sub-Total			**50.75**	**655.48**	**235.41**	**941.64**
Total			**941.64**			

The Expenditure on Machinery is as follows:

- **Machinery Purchase** – A total of 8 SMT lines are proposed to be procured. The cost towards procurement of Machinery is based on quotations obtained from vendors and includes machinery costs, freight, and other miscellaneous costs. Costs have been computed assuming a conversion rate of Rs. 76/USD. The total expenditure to be incurred for procuring and installing SMT lines and the breakup of the machinery to be purchased is included below.

C. Location and it's viability

The address of the proposed area for Additional SMT Lines are:

S. No	Particulars	Location of Expansion	Address
1	Installation of 3 additional SMT Lines	Existing Unit -II Plant @ MEPZ SEZ, Chennai	Plot No. A-23 & 26, Phase-I, Zone-B, MEPZ-SEZ, Tambaram Sanatorium, Chennai – 600045
2	Installation of 5 additional SMT Lines	Proposed New location @ MEPZ SEZ, Chennai is in the building proposed to be developed for PCBA manufacturing	Plot no. B-15, Phase-I, MEPZ SEZ, Tambaram, Chennai – 600045 Plot No. C-4, Phase-I, MEPZ SEZ, Tambaram, Chennai – 600045 Plot No.D6, Phase II, MEPZ SEZ, Tamabaram, Chennai-45, Tamil Nadu

E. SMT Manufacturing Process –EMS and IT products

Overview

The Electronic Manufacturing is a term used for companies that designs, manufactures, tests, distributes and provides repair services for electronic components and assemblies for Original Equipment Manufacturers (OEMs). The Manufacturing process is carried out with combination of Surface Mounting Technology (SMT) and Through-Hole (TH) and box Assembly.

The production process from handling of Raw materials to shipment of Finished Goods, all the operations are carried out in completely electro-static Discharge Controlled Environment.

The stages of electronic manufacturing service in generic are as follows:

- Material Handling and Kitting
- SMT Assembling
- Through-Hole Assembling
- Box/product Assembly
- Quality Audit and Shipping

The various stages of manufacturing process are as follows:

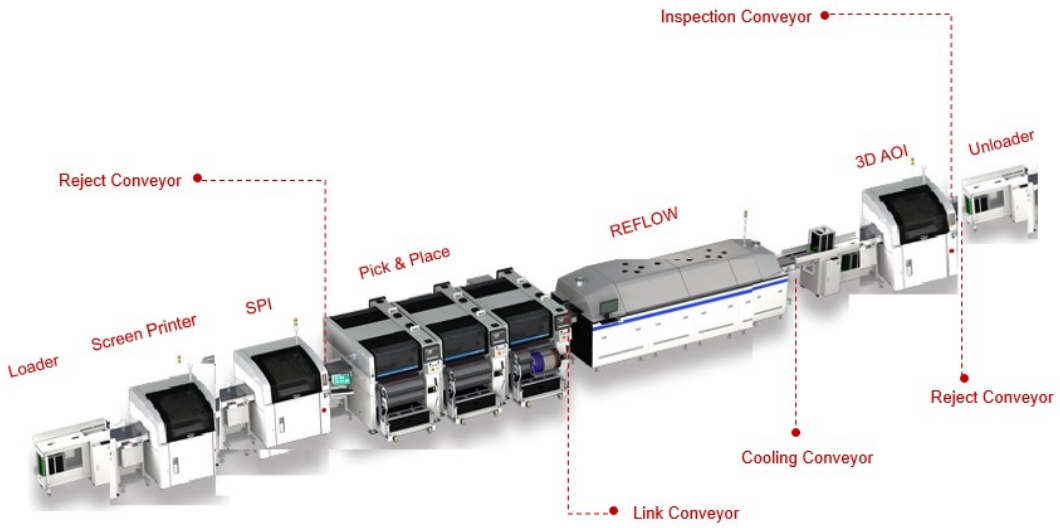
Material Handling and Kitting

Operation	Detailed description
Receiving Stores	The Raw Materials (RM) for Electronics manufacturing service includes various materials such as bare Printed circuit Boards (PCB's), active and passive electronic components (Surface Mount and Through-Hole Technology components), mechanical and plastic parts and other Consumables like Solder paste, ESD Gloves and masks, etc., These Raw Materials are stores in Material Receiving stores for Quality Inspection.
Incoming Quality Check (IQC)	The Quality inspection is carried out for all the RM to evaluate whether the same conforms to the technical requirements like control plan/Process Management Plans/test certificate/Drawing/Purchase specification.
Raw Material Storage	The QC cleared RM stock, is then moved to stores which is completely electro-static Discharge controlled Environment to protect against static discharges since the components are sensitive to static discharges resulting in damage of the components. Material which do not pass Incoming Quality check are sent to the internal Material Review Board for further review of materials to analyse feasibility of using the raw material or rejecting it back to the supplier.
Kitting	The availability of Bill of Materials (BOM) i.e., Electronic Components, Mechanical and plastic parts as per the specification are checked for Manufacture of Printed Circuit Board Assemblies (PCBA). Materials as per BoM are assembled and kits are prepared by the Company. These kits for Manufacturing of Printed Circuit Board Assemblies are then moved to Production Area for Manufacturing. This process is termed as Kitting.

SMT Assembling

SMT is where surface mount Device (SMD) or surface mount components are soldered onto the bare Printed Circuit Board (PCB) using high-end automatic Assembly lines.

Overview of SMT Line



Surface Mount Technology (SMT)

Surface Mount Technology process has a collective list of Automatic assembly equipment's to solder the surface mount components onto the PCB as follows:

Loader – It Loads the bare PCB to production line automatically by pushing PCBs out of Magazine onto the conveyor of the downstream machine.

Screen Printing – It is a process of printing solder paste on the solder pads of PCBs automatically, on which surface mount components are placed for soldering.

Solder Paste Inspection (SPI) – SPI machine automatically inspects the deposits of solder paste on solder pads as per specification. Once the boards passes SPI stage, it is moved down the line for further process.

Chip Shooter (Pick & Place) – It is a collective list of automatic equipment's, which picks and places the SMD components on the PCB, with the printed solder paste for soldering process.

Reflow Oven - Reflow oven has multiple zones, whose temperature can be individually controlled. It has multiple heating zones followed by cooling zones. The PCB with SMD components placed on it, passes through this Reflow oven on automated conveyor line, where the components are soldered to the PCB. It is then moved to Automatic Optical Inspection stage through conveyor line.

Automatic Optical Inspection (AOI) – AOI inspects the PCBA and verify if the SMD components are soldered to the PCB as per the specification. Once the PCBA passes AOI stage, it is moved to Magazine unloader through conveyor.

Un Loader - It un Loads the SMD components Assembled PCB from SMT production line automatically by pushing the PCBs to Magazine.

Through – Hole (TH) Assembling

TH Assembly is where Non-SMD and Leaded components are soldered onto PCB using semi-Automatic Lines.

Overview of Through-Hole Assembly Line

Manual Insertion Conveyor

The Non-SMD or Through-Hole components are inserted in the PCB using Manual operators in this line.

Wave Soldering

Wave soldering is a process of soldering Through-hole components automatically. PCB with components inserted is passed through the Wave Soldering Machine. The machine has molten solder over which the PCB is passed through over automated conveyor line. As the board makes contact with the molten solder, the components get soldered to the PCB. These populated or Assembled PCBs are termed as Printed Circuit Board Assemblies (PCBAs).

Box Build or Product Assembling

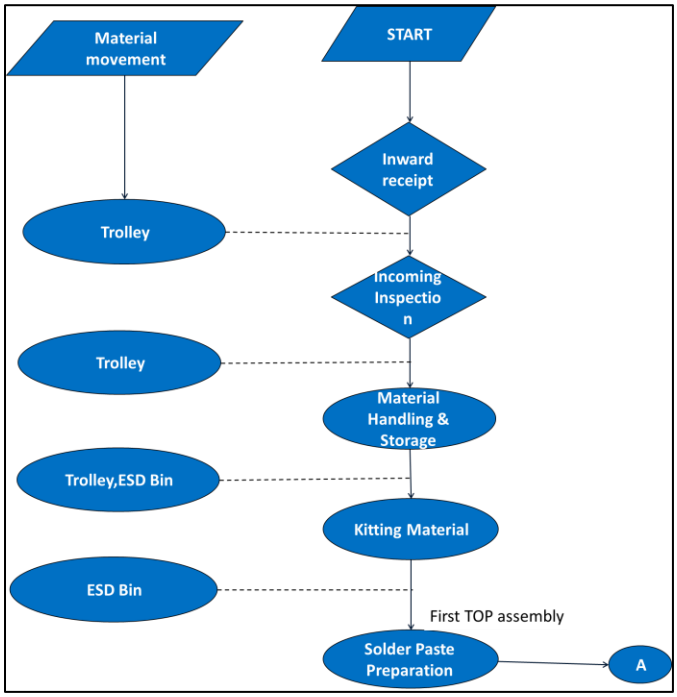
This soldered PCBA from the above production line is then passed to Box/product assembly Line where Mechanical and plastic parts are assembled as per customer requirement.

Quality Testing and Dispatch

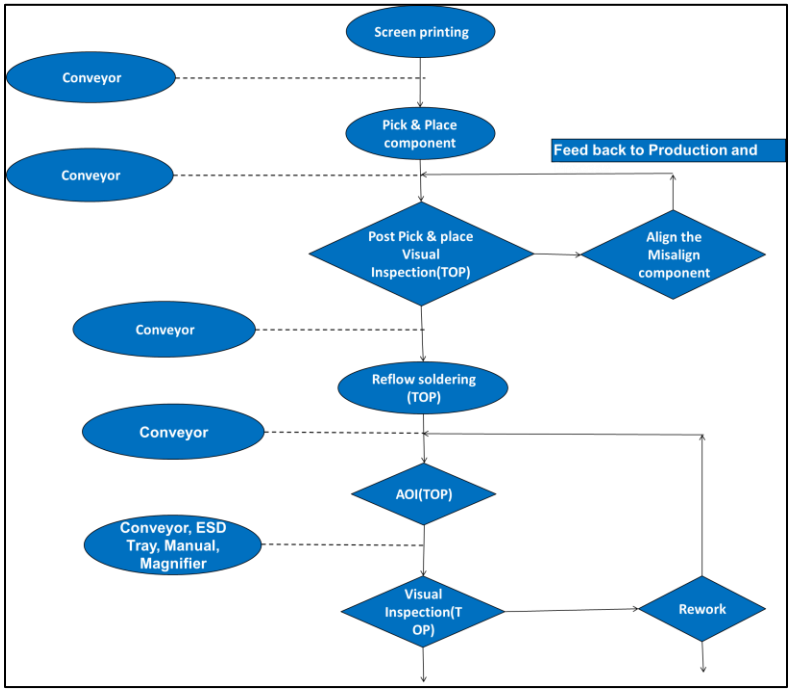
Operation	Description
Testing	Functional and reliability testing of PCBA or products is done based on customer requirements using various in-house developed test or off the shelf test equipment.
Out Box Audit (OBA)	Quality team inspects, audits and verifies the conformance of products to all specified requirements such as functionality, product dimension, etc.
Packing	Post clearance from OBA, the PCBA/products are packed as per customer requirements using ESD packing materials to make shipment.
Shipping Audit & Delivery	Shipping audit is carried out to verify Actual shipment Quantity is in line with the packing list, Invoice, address, and the goods are finally shipped to Customer.

Detailed Manufacturing Process Flow

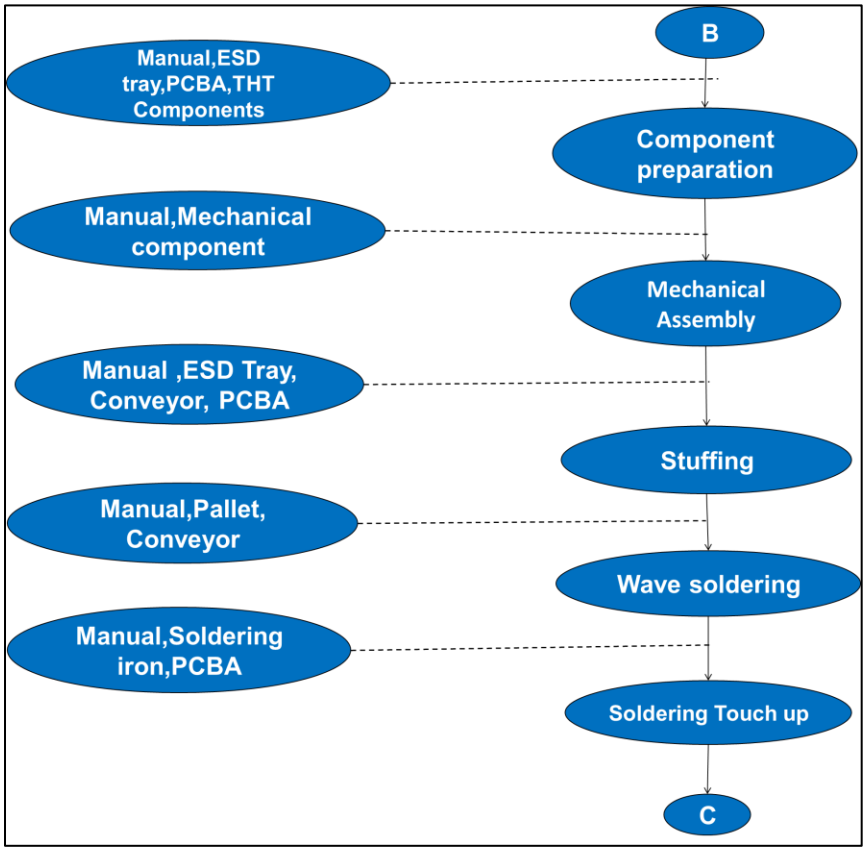
- **Material Handling to Kitting**



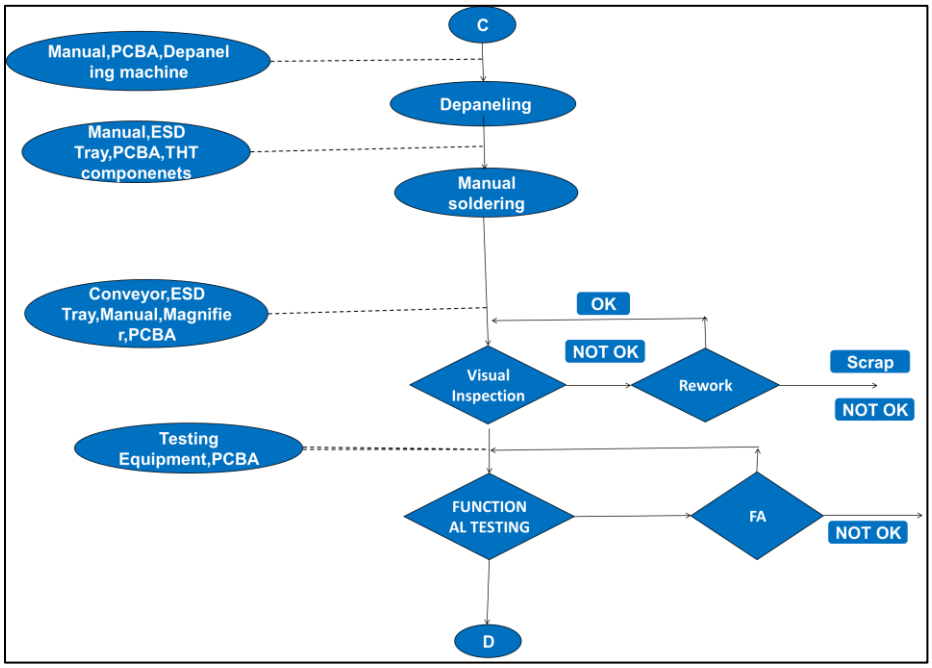
- **SMT Assembly**



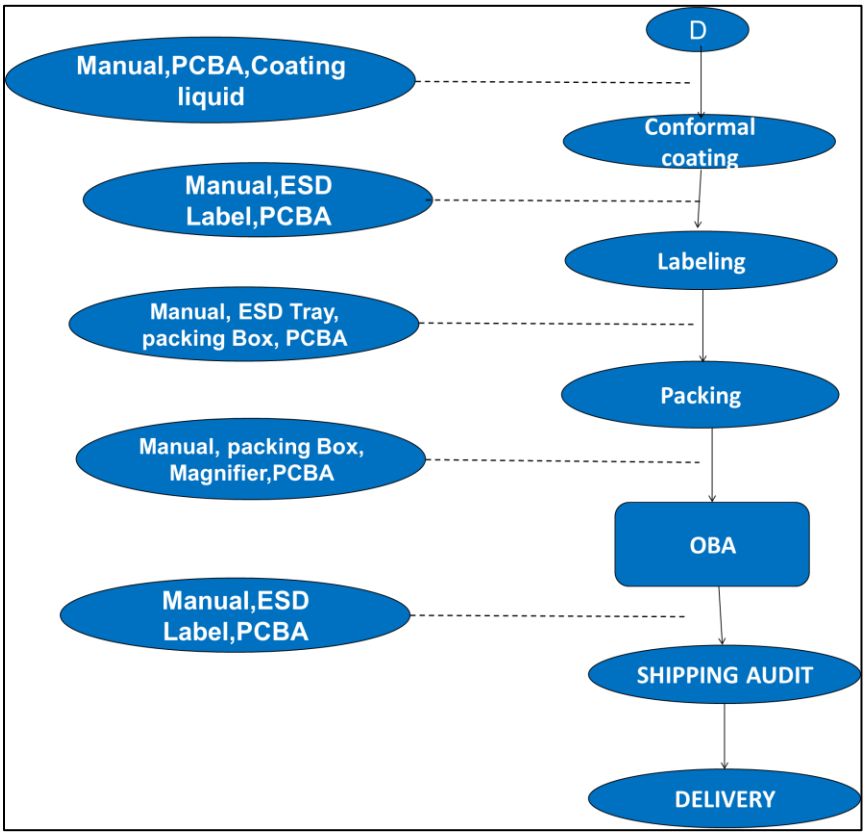
Through-Hole Assembly



- **Testing**



- **Quality Audit and Shipping**



G. Factory requirement and Cost Breakup

Plant and Machinery requirements

The Company has planned to install a total of 8 SMT lines with the balancing backend equipment. 3 of the SMT lines, shall be used for expanding the existing capacity at Unit – II premises, while the other 5 SMT lines, shall be used for establishing IT products manufacturing through the SMT lines. The list of major equipment required for one SMT line as per the quotations received dated along with the corresponding amounts is as follows: **(Table 1)**

Description	Vendor	Date of Quotation	Amount (Rs. in million)
Reflow Oven with Standard Accessories	NMTronics (India) Private Limited	25-Apr-22	4.47
Automatic Solder Paste Printer with Standard Accessories		25-Apr-22	4.69
Automatic Test and Inspection Equipment SPI		25-Apr-22	5.17
Automatic Test and Inspection Equipment AOI		25-Apr-22	17.90
Electrical and Air supply Accessories & Cleaning Machine		25-Apr-22	1.88
Pick and Place Machine (Chip Shooter)		25-Apr-22	54.30
Magazine, Loader, Unloader, Conveyors		25-Apr-22	3.08
JT Wave Soldering Machine WS 350		25-Apr-22	5.29
N2 Generator			
Feeders for Pick and Place Machine		25-Apr-22	12.66
Camera Barcode Reader		25-Apr-22	0.22
Total			**109.66**
Rounded off landed cost for investment in each SMT line**– A**			**109.66**
Proposed Number of SMT lines under the Chennai Division (Normal EMS manufacturing and IT products manufacturing) **– B**			**8**
Proposed Investment for 8 SMT lines **(A * B)**			**877.28**
IT Products manufacturing (5 SMT lines)			**548.3**
Generic EMS Products manufacturing (3 SMT lines)			**328.98**
Total estimated expenditure for installing SMT lines under Chennai Project			**877.28**

Apart from the core machineries required for installing a single SMT line, the EMS manufacturing plant further requires other ancillary machineries and equipment to be procured and installed. The Company proposes to purchase certain other machineries or equipment which may be used by multiple SMT lines or a set of SMT lines i.e., certain expenditure which shall be incurred at factory level for core production purposes. The following is the breakup of the estimated expenditure which may be incurred on setting up of the SMT lines manufacturing plant: **(Table 2)**

Description	Vendor	Date of Quotation	Amount (Rs. in million)
FLEXA Programming Software – Pick and Place machinery software (Intangible asset)	NMTronics (India) Private Limited	25-Apr-22	1.67
FLEXA Programming Software and Machine Interface - 32mm		25-Apr-22	3.47
FLEXA Programming Software and Machine Interface - 44mm			
System pc fujitrax and fujiflexa			
Aoi review system			
Offline Router (4 Axes machine)		25-Apr-22	10.95
Asyntek selectcoat			
Total			**16.09**
Rounded off landed cost for investment in each SMT line **– A**			**16.09**
Proposed set of other equipment under the Chennai Project **– B**			**4**
Proposed Investment for other equipment in setting up SMT manufacturing premises **(A * B)**			**64.36**

Total Expenditure proposed to be incurred on machinery for setting up additional EMS manufacturing:

Particulars	Amount (Rs. in million)
Estimated expenditure arrived for setting up SMT lines **(Table 1)**	**877.28**
Estimated expenditure incurred for purchasing of other equipment – factory level expenditure **(Table 2)**	**64.36**
Total estimated expenditure for setting up plant for SMT lines for manufacturing IT products and normal EMS capacity expansion under Chennai Project	**941.64**

Total Expenditure proposed to be incurred for setting up SMT lines under the respective segment:

Particulars	Amount (Rs. in million)
Estimated expenditure arrived for IT Products manufacturing (5 SMT lines)	**588.53**
Estimated expenditure arrived for Generic EMS Products manufacturing (3 SMT lines)	**353.11**
Total estimated expenditure for setting up plant for SMT lines for manufacturing IT products and normal EMS capacity expansion under Chennai Project (8 SMT lines)	**941.64**

Note on Expenditure Incurred as on 05-Jul-22:

As on 05-Jul-22, the Company has already incurred certain costs and has paid advances towards the building costs of the project. Summary and other details are listed in the table below:

S. No.	Particulars	Amount in INR Millions
1	Payment towards Capex pertaining SMT Lines as mentioned above	50.75
	Total	**50.75**

The quotations for the above equipments are valid for a period of 180 days, from the date of respective quotation.

Proposed Capacity of each SMT line

With the expansion of each SMT line, the capacity shall increase by the given components per hour (CPH). Capacity of each SMT line shall be as follows.

S. No.	Particulars (Capacity in CPH)	Actual Capacity - 3 SMT lines in Chennai (A)	Proposed Capacity - 8 additional SMT lines (B)	Incremental Capacity (C = B - A)	% of incremental capacity (D = C/A)
	MACHINE MAKE	FUJI and Yamaha	Fuji		
	Model	NXT - M3 AND M6 & AIMEX IIIC	AIMEX IIIC		
A	Rated Machine capacity of Chip shooter	326,000	3,040,000	2,714,000	833%
B	Actual Machine capacity - Precision Placer	28,700	200,000	171,300	597%
C	Total Line components placement capacity **(A + B)**	354,700	3,240,000	2,885,300	813%
D	Actual capacity - Chip shooter (@55%) **(C*55%)**	195,085	1,782,000	1,586,915	813%
E	Effective capacity per hour @85% efficiency	165,822	1,514,700	1,348,878	813%
F	No. of effective operational hours per day (for 2 shifts)	14	14		
G	Optimum Capacity per day (@85% efficiency) (in CPH)- **(E*F)**	2,321,512	21,205,800	18,884,289	813%

The Capacity shall however depend on the Products and the head used to place the components over the PCB in the SMT lines. The above-mentioned details shall be the average output based on the manufacturing capacity currently in the SMT lines with the latest technology.

III. Setting up Port Base station antenna manufacturing Unit

A. Background of the Project

The Company is proposing to invest in machineries for antenna manufacturing unit. The Company will be setting up the plant in one of the newly purchased building in MEPZ, Chennai, as mentioned above along with the other EMS manufacturing division. The Company proposes to manufacture 8 port base station antenna. The goods are proposed to be exported to USA. The Company plans to provide turnkey solution to the Customer, which will involve a type of system built for end-to-end customer requirement. The plant is proposed to be installed in a manner that once implemented, the same is designed to fulfill a certain manufacturing process.

B. Expenditure on the Project and Machinery breakup

The Company is proposing to invest around Rs. 192.66 million for the purpose of manufacturing of port base antenna, based on the quotations received from the Vendors. The below given in the broad breakup of the expenditure under which the expenditure shall be incurred by the Company.

S. No.	Machinery	Name of Vendor	Date of Quotation	Amount in INR Millions
1	Cable Cutting Machine	iNETest Technologies India Pvt. Ltd	24-Apr-22	1.50
2	Cable Striping Machine			4.00
3	Resistance soldering machine for Inner CC			1.50
4	Induction soldering machine for outer CC			3.00
5	Soldering station			0.68
6	Screw Driver 1 to 25NM			0.23
7	Soldering station			1.13
8	Screw Driver 1 to 25NM			1.20
9	Soldering station			0.68
10	Chute conveyor For movement 10ft			0.48
11	Glue Gun			0.09
Sub Total (A)				**14.49**
12	4.5mtr PIM chamber with 24inch observer	Leader Range Technology Sdn. Bhd	24-Apr-22	16.00
13	AC Chamber			1.20
14	Phase chamber with observer			4.00
Sub Total (B)				**21.20**
15	Worktable 3*3 ft	Toiltech Service	24-Apr-22	2.13
16	Chare			0.20
17	Worktable 3*8 ft			0.83
18	Worktable 6*10 ft			2.00
19	Compressor			40.00
20	Exhaust			

S. No.	Machinery	Name of Vendor	Date of Quotation	Amount in INR Millions
21	Power supply			
22	Wiring			
23	Light fitting			
24	Floor Readiness			
25	AC			
Sub Total (C)				**45.16**
26	PIM Test Equipment Rack	NetRack Enclosures Pvt Ltd	24-Apr-22	0.60
27	Phase Test Equipment Rack			0.20
28	Equipment Rack for production			0.36
29	Cable storage rack			0.10
30	Input Material Storage rack			2.55
31	7/16 connector Cable storage rack			0.10
32	Dipole assy storage rack			0.08
33	RET test Equipment Rack			0.15
34	RET assy storage rack			0.07
35	RET antenna Storage Rack			1.76
36	PS assy storage rack			0.15
37	Material Storage Bin			0.02
38	Radom Storage rack			0.20
39	Storage Bin			0.10
40	Small Bin			0.03
41	Material Movement Trolley			0.40
42	Multi Storage Rack			4.00
Sub Total (D)				**10.87**
43	Base Bank Unit 600 to 2200MHz	Elmack Engg Services Pvt. Ltd	24-Apr-22	51.40
44	Filter 600MHz			
45	Filter 850MHz			
46	Filter 2100MHz			
47	DAQ card For PIM test			0.80
48	Test Software			1.20
49	PIM Benches			1.20
50	PIM Load			0.80
51	PIM test Cable, Connector and Accessories			1.60
52	Tool Kit			0.40
53	Network Analyser 3 to 4.5GHz			14.00
54	7/16 Cal Kit			0.75
55	N Type Cal Kit			0.60
56	Test Software			0.60
57	Test Bed			2.00
58	PLC & encoder system for phase measurement			0.40
59	Phase probe			0.30
60	DAQ card			0.24

S. No.	Machinery	Name of Vendor	Date of Quotation	Amount in INR Millions
61	Phase test Cable, Connector and Accessories			0.20
62	Cable, Connector and Accessories Printing stage			0.09
63	High power test equipment - Connector assembly			0.60
64	DAQ card			0.06
65	Production Cable, Connector and Accessories			0.05
66	RET test equipment			1.20
67	DC Power supply			0.60
68	RET test Cable, Connector and Accessories			0.45
69	Test Bed 1*3.5 mtr			0.30
70	antenna relector Cable, Connector and Accessories			0.02
71	Cable, Connector and Accessories for Packing stage			0.03
Sub Total (E)				**79.89**
72	System	Swathi Infoserve	24-Apr-22	2.03
73	Scanner			0.24
74	UPS			1.20
75	20 port switch box			12.00
76	Printer			0.12
77	UPS			0.60
78	Label printer - Antenna			1.20
Sub Total (F)				**17.39**
79	Fixture setup	Nive Systems Pvt. Ltd.	24-Apr-22	0.12
80	heat shrink sleeve fixing - Hot airgun			0.02
81	Dipole assembly fixture 600Mhz			0.12
82	Dipole assembly fixture 2100Mhz			0.12
83	Dipole Soldering Fixture			0.36
84	PCB soldering Fixture			0.11
85	PS Soldering fixture			0.64
86	PS Assembly Fixture			0.40
87	PS Cable Soldering fixture			0.80
88	Assembly Fixture			0.60
89	Reflector Assembly Fixture			0.04
90	Radom assembly fixture			0.10
91	Process Measuring Tools			0.23
Sub Total (G)				**3.66**
Total Cost (H) = (A)+(B)+(C)+(D)+(E)+(F)+(G)				**192.66**

The quotations for the above equipments are valid for a period of 180 days, from the date of respective quotation.

Proposed address for the newly purchased building where the operations of Port base antenna manufacturing: Plot No. B-14 & C-4, Phase-II, MEPZ SEZ, Tambaram Sanatorium, Chennai – 600045

C. Production process

- **Pre-Assembly:**
  - Cable to connector assembly (jumper)
  - Dipole assembly (solder and assembly)
  - RET box assembly and test (screw plus harness test)
  - Phase shifter assembly
- **Assembly:**
  - Production line antenna reflector
  - Cables, dipoles, phase shifters, PCB: Soldering
- **Testing:**
  - Pre PIM (no tilt, 600Mhz, 700Mhz, 2100Mhz)
  - Final PIM (1-5-10 degrees 600Mhz, 700Mhz, 2100Mhz
  - RF test (VSWR, Isolation and Phase)
  - Aging PIM (Dwell 3 days then final (1-5-10 degrees 600Mhz, 700Mhz, 850 Mhz and 2100Mhz
  - RF test (VSWR, Isolation and Phase)

IV. Other aspects

A. Overall Project Implementation Timelines and Schedule

S. No.	Project	Estimated Period of Commencement	Estimated Period of Purchase Order (PO)	Estimated Period of Delivery	Estimated Period of Installation or Erection	Estimated Period of Completion (including trial production)	Estimated Commercial Production /Operations
1	Developing a new & upgraded State of Art Research & Development Laboratory	Nov-21	May-22	Sep-22	Mar-23	Jun-23	Jul-23
2	Developing a new Electronics Manufacturing (IT products) facility by setting up Surface-Mount Technology (SMT) Lines & Equipment	May-22	Oct-22	Apr-23	Sep-23	Dec-23	Jan -24
3	Setting up additional SMT Lines & Equipment (for IT Products)	May-22	Oct-22	Jan-23	Mar-23	Jun-23	Jul-23
4	Setting up establishment for manufacturing port base Antenna	May-22	Oct-22	Jan-23	Mar-23	Jun-23	Jul-23

The proposed capacity expansion plans relating to the Company's manufacturing facilities are subject to the risk of unanticipated delays in implementation and cost overruns.

B. Pollution and Control technology

The Company is based in MEPZ SEZ, a dedicated Industrial Zone. As such the manufacturing process of the Company does not create pollution to the environment in any aspects (Air, Water & Sound). The proposed expansion in the form of setting up a R&D Lab, installing SMT lines & proposed Kitting activities will also not create pollution to the environment in any aspects (Air, Water & Sound). As a nature, the SMT lines do not create any major pollutions in production. Further, all the plants of the Company are classified under the Green and White zone category under the pollution standards.

Additionally, the SMT lines includes a fume exhaust system in the reflow oven and in the wave soldering machine (machines part of the SMT lines) to ensure that the pollution is within the prescribed limits. Further, annual air quality monitoring with external lab shall be conducted to ensure that the air quality is within the prescribed limits of pollution.

The Company will ensure that terms in the Consent order approval from the Tamil Nadu Pollution Control Board (TNPCB) will be complied with for existing as well as proposed facilities.

During the process, some E-Waste may be generated. The E-scrap generated at manufacturing plant (Existing/Proposed) is/will be disposed through Authorized scrap dealer.

The machineries required to be set up in the factory for maintaining appropriate pollution levels, are included in the list of equipment mentioned above and no other machineries are required to be set up for pollution control.

C. Safety

Safety of its employees is utmost priority for the Company. The proposed locations are fitted with suitable & sufficient Fire safety equipment like fire extinguishers, fire alarm system, fire hydrant system etc. Further, the Company shall design a full fledge fire exit plan at each of the existing and the new premises.

D. Power Requirements

The power availability will normally remain stable since, the Company is settling in an industrial zone. The proposed locations will be having High Tension power supply connections to cater to the requirement of the Manufacturing Operations. The average monthly Power requirement for the additional SMT lines of the Company shall be as given below.

Particulars	Monthly Power Capacity (Kilo Watt (KW))
Existing average power Capacity in Chennai Unit -2 (2 SMT lines)	224 KW
Average Power requirement each SMT line	112 KW
Additional Power requirement w.r.t additional 7 SMT lines for EMS Products and IT products	896 KW

E. Manpower Requirement

The incremental manpower requirement across 3 years as per the projections are given below:

S. No.	Project Details	FY 21-22	FY 22-23	FY 23-24	Total
Developing a new & upgraded state of art research & development laboratory					
1	Senior Level Executives	1	2	1	**4**
2	Middle Level Executives	-	3	3	**6**
3	Junior Level Executives and Apprentices	-	30	30	**60**
	Sub-total	**1**	**35**	**34**	**70**
Installation of SMT lines for manufacturing EMS & IT products					
1	Senior Level Executives	1	5	2	**8**
2	Middle Level Executives		22	6	**289**
3	Junior level executives Operators and Apprentices		320	60	**380**
	Sub-total	**1**	**347**	**68**	**677**
	Grand Total	**2**	**382**	**102**	**747**

Setting up the additional SMT lines and the SMT lines for setting up of IT products, the Manpower requirement shall be as follows, where on average a single SMT line, shall involve 10 operators per shift for the production in the SMT lines. The Company is currently running for 3 shifts hence, the average requirement per day for each SMT line production shall be around 30 operators. Apart from the main SMT lines production, variable operators shall be required for the backend operations for making of Box Build.

F. Water Requirements

Existing as well as proposed expansion do not have any water requirement in the manufacturing requirement. All the water requirement of the Company is for domestic use only which could vary between 5 Kilo litres a day to 30 Kilo litres across the existing and proposed expansions mentioned above.

G. Government Approvals

In relation to the Capital Expenditure, we are required to obtain approvals from various authorities which are routine in nature. The necessary applications will be made with respective authorities as and when the project execution is in force on a timely basis. As on date, none of the approvals listed below are required, or are obtainable at this stage

List of Material Government approvals or registrations which shall be obtained by the Company are as follows:

1. Obtaining factory license
2. Consent order from Pollution control board (PCB), Water department, etc. under the respective State government.
3. New premises registration with the GST and Customs authorities.
4. Registration with SEZ (MEPZ) Authorities

5. Restriction of certain Hazardous Substances (ROHS) Certification as required for electronic devices for sale in European Union.
6. Renewal & updation of agreements and power sanctions for electricity with local electricity boards.
7. E-waste registration.
8. No-objection certification (NOC) from fire safety authorities. License required under specific labour laws for setting up new establishments or factories such as Provident funds, Employee State Insurance, Professional tax, etc.
9. End use industry specific compliances.