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PROJECT REPORT

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PROJECT:

E-bicycle manufacturing unit

PROJECT REPORT

OF

E-BICYCLE MANUFACTURING UNIT

PURPOSE OF THE DOCUMENT

This particular pre-feasibility is regarding E-bicycle manufacturing unit.

The objective of the pre-feasibility report is primarily to facilitate potential entrepreneurs in project identification for investment and in order to serve his objective; the document covers various aspects of the project concept development, start-up, marketing, finance and management.

[We can modify the project capacity and project cost as per your requirement. We can also prepare project report on any subject as per your requirement.]

PROJECT AT GLANCE

1	**Name of Proprietor/Director**	XXXXXXXX	
2	**Firm Name**	XXXXXXXX	
3	**Registered Address**	XXXXXXXX	
4	**Nature of Activity**	XXXXXXXX	
5	**Category of Applicant**	XXXXXXXX	
6	**Location of Unit**	XXXXXXXX	
7	**Cost of Project**	24.64	Rs. In Lakhs
8	**Means of Finance**		
i)	**Own Contribution**	2.46	Rs. In Lakhs
ii)	**Term Loan**	18.90	Rs. In Lakhs
iii)	**Working Capital**	3.28	Rs. In Lakhs
9	**Debt Service Coverage Ratio**	2.68	
10	**Break Even Point**	0.23	
11	**Power Requiremnet**	20	KW
12	**Employment**	8	Persons
13	**Major Raw Materials**	Metal,Electrical components	

14 Details of Cost of Project & Means of Finance

Cost of Project — **Amount in Lacs**

Particulars	Amount
Building & Civil Work	Owned/Leased
Plant & Machinery	19.00
Other Misc Assets	2.00
Working Capital Requirement	3.64
Total	**24.64**

Means of Finance

Particulars	Amount
Own Contribution	2.46
Term Loan	18.90
Working capital Loan	3.28
Total	**24.64**

1. INTRODUCTION

An electric bicycle, also known as an e-bike, is a bicycle with an integrated electric motor used to assist propulsion. Many kinds of e-bikes are available worldwide, but they generally fall into two broad categories: bikes that assist the rider's pedal-power (i.e. peddles) and bikes that add a throttle, integrating moped-style functionality. Both retain the ability to be pedaled by the rider and are therefore not electric motorcycles. An e-bicycle is one with an electric motor (attached to the bottom bracket or front wheel) that assists the rider with pedaling. The two most common types of hub motors used in electric bicycles are brushed and brushless. Many configurations are available, varying in cost and complexity; direct-drive and geared motor units are both used. An electric power-assist system may be added to almost any pedal cycle using chain drive, belt drive, hub motors, or friction drive. E-bikes use rechargeable batteries, electric motors, and some form of control. Battery systems in use include sealed lead-acid (SLA), nickel-cadmium (NiCad), nickel-metal hydride (NiMH), or lithium-ion polymer (Li-ion). Batteries vary according to the voltage, total charge capacity (amp hours), weight, the number of charging cycles before performance degrades, and ability to handle over-voltage charging conditions. E-bikes are zero-emissions vehicles, as they emit no combustion by-products, but the environmental effects of electricity generation and power distribution and manufacturing and recycling batteries must be accounted for. Even with these issues considered, e-bikes have a significantly lower environmental impact than cars. Under UK regulations, e-bikes cut the power assistance when you stop pedaling or when your speed reaches 15.5mph.

2. MARKET POTENTIAL

The electric bicycles are loaded with a component that is integrated and electrically determined. The system utilizes a battery that can deliver power that assists in propulsion. Worldwide, the utilization and accessibility of e-bicycles are gaining a lot of momentum owing to their range and use of the small motor. This aids in helping the pedal-power of the individual who is cycling. Likewise, this assists the relatively powerful bicycles to produce power in such a way that they can completely drive the vehicle by making use of the throttle. E-bicycles give comfort and ease to their users. Hence, the governments of different economies are supporting and initiating researches that will in general expand the sale of electric vehicles, e-cycles. This is probably to drive the worldwide electric bicycle market size and grow at a

7.9% CAGR by the end of 2023. The market is probably to reach a market valuation of USD 20,650 million by the end of 2023.

The outbreak of the COVID19 pandemic has pushed individuals to drop the use of public vehicles. People are selecting to purchase their vehicles and use them for driving to safeguard themselves from the pandemic. E-bicycles are trending and are arising as a secure, more convenient, as well as affordable means of transportation. Also, this is cheap and simple to charge system. There is no necessity of huge capital to lend support to this sort of infrastructure. This is one of the principal reasons that kept the deals of the e-bicycles going on even during the pandemic year of 2020, as well as, the imposition of temporary and permanent lockdowns. For the financial year of 2021, the electric bicycle market is expected to attain normalcy in terms of CAGR growth and market valuation. The worldwide economy is going through fast urbanization, just as, traffic congestion. This is one of the fundamental reasons why the market is moving towards the demand for e-bicycles. Also, post the pandemic, shared transport portability is witnessing a demand in its decline. The e- bicycles are moderately safe and a reasonable alternative to public transport and avoid the disease. The nations are opting towards subsidies, as well as, regulatory changes that are decreasing the level of stress for the transportation ways. Bicycles are additionally the most energy-efficient vehicle—a cyclist burns about 35 calories per mile (22 calories per km). Bicycles are used not only for transportation, but for fitness, competition, and touring as well. They come in myriad shapes and styles, including racing bikes, all-terrain bikes, and stationary bicycles, as well as unicycles, tricycles, and tandems.

3. INDUSTRIAL SCENARIO

The use of computer technology greatly enhanced the design capabilities of manufacturers and designers. Designers can simulate various forces working on the bicycle, such as pedaling and road shock. Computer-generated programs simplify testing, and variations of designs are altered all the more effectively and rapidly. There are various types of batteries that are utilized by electric bicycles for smooth operations. These are lithium-ion, lithium-ion polymer, as well as, lead acids. The speed at which the electric bicycles work is either up to 20 kmph or between 25-45 kmph. The motor and mode that is utilized by the electric bikes for operational functioning are mid and hub motor, as well as, pedal-assist mode and throttle mode respectively. The electric bicycles market revenue is significantly dependent on the performance of the key market players in these regions are the APAC region, the North American region consisting of the USA and Canadian market, the European nations, along the rest of the world. The electric bicycles market outlook predicts that the Asian Pacific region is expected to emerge as a dominant force in the market performance by the end of the global forecast period in 2023. Regions like India and Taiwan, along with the Chinese and Japanese market are developing as a possible reason for stimulating an increment in the quantum of sales in electric bicycles. Further, North American, along with the European market has electric bicycle manufacturers that are making a shift to the mid-motors market. The fundamental purpose behind this is the benefits like the lightweight small size. Additionally, there is less noise pollution created by these motors. Subsequently, this market in these regions is expected to register a decent CAGR growth.

4. PRODUCT DESCRIPTION

4.1. PRODUCT USES

Electric Bicycles can be used for transportation and also for fitness, competition, and touring. Electric bikes/bicycles can be used at various locations like cargos, city and both rural and urban areas along with mountaineering, as well as, trekking.

4.2. RAW MATERIAL REQUIREMENT

Metal- Steel metal coils/strips, Aluminium Alloy blocks, SS wire, Brass coil, etc. To form bicycle frames steel strips can be used. Manufacturers can also purchase steel bars or pipes instead of metal strips. Aluminum alloy material can be used to form wheel rims and SS wire is used to form rim spokes. A brass coil can be used to form spoke nipples.



Electrical components- Motor, Controller, Battery, Charger, Display, Pedal Assist (PAS) sensor, etc. Hub Motor: this type of motor exists inside an enlarged hub and is built directly into either the rear or front wheel with special spokes. It drives the

bicycle by applying torque directly to the wheel and is usually quieter and more efficient than external chain-driven motors. Pedal Assist Sensor senses the revolutions of the front crank, there is a small plate with magnets and sensors in it mounted right where pedals go through the bike frame and every time the pedal goes by it signals the bike motor to help “assist” the user. Lithium-Ion (Li-ion) battery is the most desirable because it offers the most charge cycles and is also very light. It is also the most expensive and has been unstable in some applications in the past.

Other components- Derailleur, nut and bolts, tire, tubes, chains, Seat, etc. These components are generally made elsewhere and purchased by the bicycle manufacturer.

4.3. MANUFACTURING PROCESS

This process can be broken down into the following steps-

1. Raw material procurement
2. Metal fabrication process
3. Assembly- Wheel assembly
   Electric components assembly
   Final assembly
4. Testing

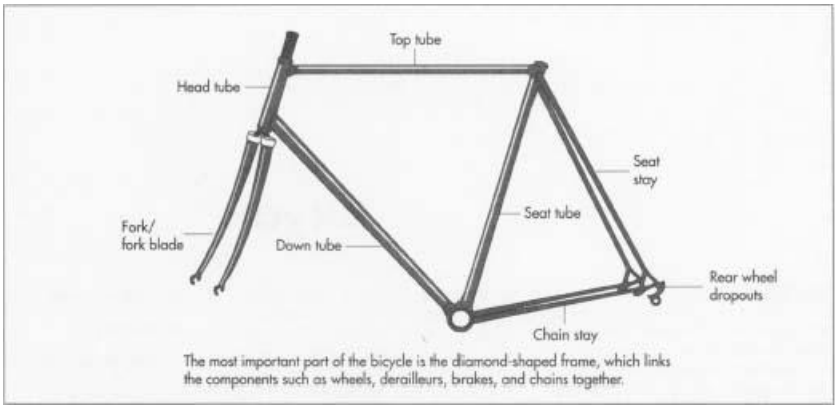
Raw material procurement

The raw material will be purchased. The raw material for spokes comes on rolls of wire, either 2.3, 2.0 or 1.8mm thick depending on the spoke that is being made. Aluminum alloy for rims comes in blocks. Chemical composition, hardness, and impact tests for metal material will also be done. To ensure complete quality control, other raw materials will also be checked strictly as per established quality standards and requirements. Sorting of raw material will be done. In the sorting procedure, the different types of materials or parts will be sorted out like plastic, electrical components, metal parts, etc. It will be separated and the material will be stored in a neat and dust-free environment and later on, it will dispatch to the assembly line.

Metal fabrication process - Frame, Handlebar, Rims, Spokes, Spokes caps/nipples, etc.

Frame-The main metal part of the bicycle is its frame. The fabrication process for this frame can be divided into the following steps: Tailoring the tubes, Brazing, welding, and gluing, Aligning and cleaning, and Finishing. Frame tubes are

constructed from steel metal strips that are pierced and "drawn" into tubes through several stages. These are made by drawing flat steel strip stock, wrapping it into a tube, and welding it together along the length of the tube. Tubes will then be further manipulated to increase their strength and decrease their weight by butting or altering the thickness of the tube walls. Tailoring the tubes- The metal is annealed, or softened by heating, and hollowed out to form "hollows," or "blooms." These will be heated again and will be pickled in acid to remove scale, and lubricated. The hollows are estimated, cut, and metered to the proper measurements. Then, the hollows are fitted over a mandrel, or bar appended to a drawbench. To accomplish the right gauge, the hollows pass through dies which stretch them into more slender and longer tubes, a cycle called cold drawing. The tubes will be shaped and tightened into an assortment of designs and lengths. Brazing, welding, and Metal Joining Process- Tubes can be joined into a frame either by hand or machine. Frames can be brazed, welded, or glued, with or without lugs, which are the metal sleeves joining two or more tubes at a joint. Aligning and cleaning- The assembled frames are then positioned into jigs and checked for legitimate alignment. Adjustments are made while the frame is as yet hot and pliable. The excess flux and brazing metals are cleaned off by pickling in corrosive arrangements and by washing and crushing the brazing until it is smooth. After the metals have cooled, further precision alignments are made. Finishing- The frames are then painted, not exclusively to make a more completed appearance yet additionally to protect the frame. The frame is prepared with an undercoat and then painted. Paint will be applied by hand-spraying or by passing the frames through automatic electrostatic spraying rooms. Transfers and polish are then applied to the frame. Brand labels and stickers are then placed onto the relevant parts of the bicycle.

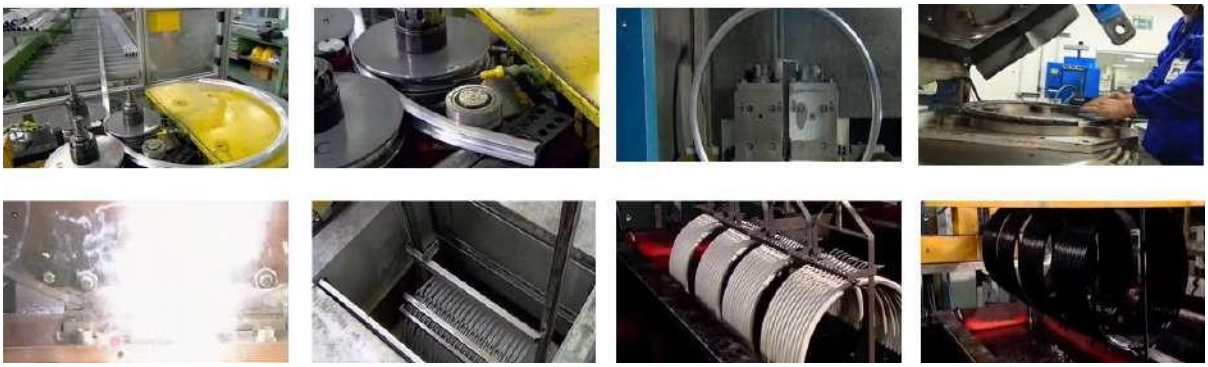


The most important part of the bicycle is the diamond-shaped frame, which links the components such as wheels, derailleurs, brakes, and chains together.

Handlebars- Alloy steel pipe will be sent for annealing it will be heated in the industrial oven for 6-7 hours at a certain temperature. The annealing will allow the tube for butting and shaping steps. Butting is used to create wall thickness allowing more material utilized where required. After that swaging will be done. Tube bending will be done using a bending machine. The formed handlebar will be tested and polished and later will be painted.

Rims- For wheel manufacturing, need to conform to the ISO standards for wheel diameter and tire sizes. Wheels rim can be made by metal extrusion process. The

aluminum comes in blocks and is pressed through a pre-made die shaped into the cross-section of the rim. This results in a long, straight piece of the rim that is cut to length and then bent into a perfect circle. The rim is then placed into an automatic, computerized welding machine that welds the seam of the rim together in about half a second. This extremely precise welding process produces a seam that almost can't be seen. After the rim is in a solid hoop, the braking surface is then etched into the rim with a cutting tool. The rims are then drilled to accept spokes using an automatic rim drilling machine. A wheel must be trued, or straightened, in radial and lateral directions to achieve uniform tension. The rims are then painted and clear-coated as needed.



Spokes- First the procured and QC wire will be unrolled and straightened using a straightening machine. The wire is then fed through three sets of rollers to untwist it and is then cut, forming a spoke blank. Then the processes start to diverge. The wire is fed straight into the spoke-making machines and a speedy spoke a second comes out at the other end. Swaging is the process of cold forging the spokes to reduce the diameter.

Spoke caps/nipples- The spoke nipple is a headed cylinder with threading on the inside through part of its length. Brass or aluminum coil is drawn and fed into the spoke nipple-making machine where it will be punched in a hollow shape. The shape of the head of the nipple will be machined and will be drilled. Using a fully auto manufacturing process, material feeding, loading, nipple facing & drilling will be done and spokes caps/nipples will be formed.

Assembly

Wheel assembly- For the rear wheel, Spokes will be attached to the Motor hub. Then the Hub will be placed in between the rim and spokes another end will be inserted into the rim drills. And will be tightened with spokes caps/nipples. Then rim liner, tire, and inner tube are attached. And it will dispatch for testing. For the front wheel, the assembling process will be the same instead of the hub motor simple hub will be attached.

Assembling of the components and final assembly- Depending on the style of bicycle, the gear shift levers are mounted either on the down tube popular on racing bikes on the stem, or on the handlebar ends. A cable will be attached, which extends to the front and rear derailleurs. Front derailleurs, which move the chain from one drive sprocket to another, will be clamped or brazed onto the seat tube. Rear derailleurs will be mounted with bolt-on hangers or integral hangers. Then handlebars, stems, and headsets will be fixed. Handlebars will be bolted to the bicycle stem which is then fitted into the head tube. The headset components, including bearings, cups, and locknuts, are attached to the head tube. The headset allows the fork to turn inside the head tube and thus makes steering easier. Then for the electric brake mounting, brake levers will be mounted to the handlebars. Cables extend to the brakes and are then fastened to the calipers. Tape, made of plastic or cloth, can then be attached to the handlebars and the ends are plugged. The display will be attached beside of accelerator. Then Crankset will be attached. The crankset supports the pedals and transfers power from the pedals to the chain and rear wheel. Cranksets consist of steel or aluminum alloy crank arms, chainrings, and the bottom bracket assembly of an axle, cups, and bearings. They are attached with bolts and caps into the bottom bracket of the bicycle frame. A pedal assisting sensor will be attached to the crank arm and pedals are then screwed to the ends of the crank arms. Then Wheels, tires, and hubs will be fitted. The chain will be fitted. Wheels with an attached hub motor will be attached to the bicycle frames. The axle will be tightened with bolts at the ends or with quick-release skewers. The battery holder will be attached to the cage or the bottle cage with screws. The battery will be mounted on it. And will be enclosed with cover. Brakes, Display, Pedal assistance sensor, Battery all these components connection will be made with the Controller. All wires will be placed inside the controller box and the box will be enclosed. This controller box will be attached to the cage or frame**.** Further, Saddles and seat posts will be fixed. Seat posts are generally steel or aluminum alloy and are bolted or clamped

into position. The saddle is generally made of molded padding and covered with nylon or plastic materials.

Testing

- Quality control
- Visual check: workmanship check, overall product check: frame, saddle, chain, cover chain, tires, wiring and connectors, battery, charger, etc.
- Function check; Riding tests (finished product): to ensure that e-cycle can be ridden properly as well as all assistance modes and display functions is proper,

motor assistance/brakes/transmission working properly, no unusual sounds or functions, tires inflated and mounted properly on rims, spokes installed properly in the rims, etc.

- Mechanical and Electrical safety components for these cycles are also inspected thoroughly to ensure all compliance standards are met.

4.4. YIELD OF PRODUCT/PRODUCTION RATIO

The production capacity will be approx. 5-10 pieces per day with 8 workers and based on a single shift and 90% of efficiency.

5. QUALITY CONTROL & STANDARDS

- Quality standard: ISO 9001
- Product standards
- Code of practice- IS 12426: 1988, IS 8715: 1978
- Safety standard- IS 10613: 2014, IS 15533: 2004/ISO 8098
- IS/ISO 6742 (Part 2):2015 -Retro-reflective Devices,_Reflectors for Bicycles

6. PROJECT COMPONENTS

6.1 Land /Civil Work

The land require for this manufacturing unit will be approx. around 3000-4000 square feet. We have not considered the cost of Land purchase & Building Civil work in the project. It is assumed that land & building will be on rent & approx. rental of the same will be Rs.20000.00 per month.

6.2 Plant & Machinery

This is a semi-automatic type of plant and production capacity is set to be 5-10 pieces of finished product per day.

- **Rim making machine/Rim production line**

Steel rims production line contains roller machine, cutting machine, hole punching machine/drilling machine, pin pressing machine, rounding machines, cutting machines, seam welding machines, edge-turning machines, etc. Aluminum rim production line contains aluminium scalping machine, roller machine, drilling machine edge-turning machines, etc.

- **Spokes making machine**

This machine is used to make bicycle spokes automatically. These machines have features such as wire straightening, wire cutting, head hammer, spoke angle bending, and also spoke head threading. Along with this machine Spoke twisting machine can also be used which is used to make a twist on the flat spokes.

- **Automatic Spoke cap/nipple making machine**

This machine can be used to form spokes nipples and has features like material feeding, loading, nipple facing & drilling.

- **Spokes nipple/cap tighten machine**

This machine can be used for rim shift rotating and nipple tightening with spikes.

- **AUTO SPOKE STABILIZER**

This machine has features like Auto loading/unloading, auto spoke stabilizer, and used to pressing both rims and spoke to stabilize the spoke it also has Auto air blowing to clean the chips.

- **Punching machine**

This machine can be used in areas such as forming, blanking, bending, punching, and cold stamping process. This machine can be used to make bladed spokes and ellipse-shaped spoke.

- **Tire mounting machine**

This machine can be used for auto tire mounting. Loading and unloading will be done manually,

- **Steel pipes making machine**

This machine can be used to form steel pipes which will be used for bicycle frames.

- **Handlebar forming machine**

Manual tube loading and unloading, shaping auto clamping, and safety line rolling for handlebar stem.

- **Frames assembling machine**

This machine can be used for the frame, forks Assembling, and adjusting.



- **Welding machine**- Rim welding machine, Spot welding machine, Frame welding machines, or apparatus.

An automatic rim welding machine is used for rim welding. Spot welding machine can be used while frame welding.


- **Polishing/Buffing machine**

Metal parts polishing can be done using a buffing machine.

- **Drilling machine**

To perform drilling operations this machine can be used.

- **Cut off machine**

These machines can be used to cut steel bars, shafts to the required length.

- **Pneumatic Riveting Machine and air compressor**

For painting formed metal parts riveting and air compressor is used.

- **Pickling Plant**

The pickling process is used to remove impurities, rust, and scale from the surface of a material.

- **Heating Chamber**

After powder coating heating is usually required to finish curing the coating.

- **Laser printer machine**

To engrave the company name or logo on a product laser printer can be used.

- **Testing Equipment's**

i. **E-bicycle/bike testing machine-** The bike testing machine is used to test the bike's run test& brakes performance test.

ii. **Wheels testing machine-** This machine is used to measure Wheel dimension, Hub length, Rim edge width, etc.

iii. **Oscilloscope-** This equipment is used to test and display voltage signals as waveforms, visual representations of the variation of voltage over time.

iv. **DC power supply -** DC power supplies are power supplies that produce an output DC voltage.

v. **Multimeter-** It is an electronic measuring instrument that combines several measurement functions in one unit.

- **Tools-** Cutter, Screwdriver, Pliers, Hammer, etc.

S No.	Description	Rate	Quantity	Amount
1	Rim making machine	300000	1	300000
2	Spokes making machine	200000	1	200000
3	Automatic Spoke cap/nipple making machine	125000	1	125000
4	Spokes nipple/cap tighten machine	126000	1	126000
5	Auto spoke stabilizer	39000	1	39000
6	Punching machine	110000	1	110000
7	Tire mounting machine	150000	1	150000
8	Steel pipes making machine	150000	1	150000
9	Handlebar forming machine	150000	1	150000
10	Frames assembling machine	90000	1	90000
11	Welding Machine	90000	1	90000
12	Polishing/Buffing machine	50000	1	50000
13	Drilling machine	15000	2	30000

14	Cut off machine	20000	2	40000
15	Pneumatic Riveting Machine and air compressor	20000	1	20000
16	Pickling Plant	90000	1	90000
17	Heating Chamber	75000	1	75000
18	Laser printer machine	35000	1	35000
19	Testing & Other Equipment's	-	-	30000
Total				**1900000**

6.3 Misc. Assets

The miscellaneous assets include storage tanks, Indicators/ Recorders for temperature and pressure, pumps and gears at various stages of manufacturing, Laboratory equipments such as measuring devices, weighing machines, Material handling equipment like hoist, pallet trucks, and fork lifts to handle the raw materials, Safety equipments, instrument chart and accessories, cleaning materials of the plants, furniture, and other electrical equipments.

6.4 Power Requirement

The Power required by electric bicycle manufacturing plant whose production capacity is around 5-10 pcs per day is 20 KW.

6.5 Manpower Requirement

Manpower required for this unit will be around 5-8 people.

7. LICENSE & APPROVALS

Basic registration required in this project:

- MSME Udyam registration
- BIS certification
- ISO certification
- Factory license
- Company registration (Optional)
- GST registration
- NOC from the pollution control board
- NOC From Fire & Safety Control Board
- EPF & ESI -Labour registration

8. SWOT ANALYSIS

Strengths– Profit margin will be high. Product Cost will be low and quality will be good hence conforms to more customers' requirements.

Weakness- Lack of division of labor. Maintenance of machinery will be required. The anti-dumping policy of many countries had a concerning impact on the demand for components. To overcome the same, the region is increasing the quantum of imports. This is being done with a view of fulfilling the e-bikes, as well as, the relative components.

Opportunities- Export enhancement will be an opportunity. More sales opportunities.

A global rise in the popularity and adoption of e-bikes is kicking the technological advancements in the field. The connected e-bikes have SIM modules that enable the e-bikes for sending and receiving the required data. The vital features possessed by these bikes are emergency calling and remote diagnostics, social media connectivity, a system for anti-thefts and much more is likely to enhance the supply chain management, benefitting the market end-users.

Threats- Prices of raw materials, Competitors can be threats for this unit. The trade war is emerging within countries like China, and, the USA, which are likely to impact sales.

PROJECTED PROFITABILITY STATEMENT **(in Lacs)**

PARTICULARS	1st year	2nd year	3rd year	4th year	5th year
Capacity Utilisation %	**30%**	**35%**	**40%**	**45%**	**50%**
SALES					
Gross Sale					
ELECTRIC BICYCLE	84.38	105.49	126.64	149.64	174.64
Total	**84.38**	**105.49**	**126.64**	**149.64**	**174.64**
COST OF SALES					
Raw Material Consumed	59.04	72.32	86.79	102.52	119.62
Electricity Expenses	1.15	1.34	1.54	1.73	1.92
Depreciation	3.15	2.68	2.28	1.93	1.64
Wages & labour	7.68	8.76	9.19	10.30	11.53
Repair & maintenance	0.25	0.53	0.89	1.20	1.05
Packaging	0.42	0.63	1.01	1.05	1.22
Cost of Production	71.70	86.26	101.70	118.73	136.98
Add: Opening Stock	-	1.67	2.01	2.37	2.77
Less: Closing Stock	1.67	2.01	2.37	2.77	3.20
Cost of Sales	70.02	85.92	101.34	118.33	136.56
GROSS PROFIT	**14.36**	**19.57**	**25.30**	**31.31**	**38.08**
GROSS PROFIT RATIO	**17.02%**	**18.55%**	**19.98%**	**20.93%**	**21.80%**
Salary to Staff	4.56	5.47	6.57	7.88	9.46
Interest on Term Loan	1.86	1.64	1.17	0.71	0.25
Interest on working Capital	0.36	0.36	0.36	0.36	0.36
Rent	2.40	2.76	3.04	3.34	3.67
Selling & Administrative Exp.	1.10	2.32	3.17	3.74	4.37
TOTAL	**10.28**	**12.55**	**14.30**	**16.03**	**18.11**
NET PROFIT	4.08	7.02	11.00	15.28	19.97
NET PROFIT RATIO	**4.75%**	**6.15%**	**7.56%**	**8.40%**	**9.08%**
Taxation	0.08	0.53	1.42	2.71	4.12
PROFIT (After Tax)	4.01	6.49	9.57	12.57	15.86

PROJECTED BALANCE SHEET **(in Lacs)**

PARTICULARS	1st year	2nd year	3rd year	4th year	5th year
Liabilities					
Capital					
Opening balance		2.97	5.46	8.53	12.10
Add:- Own Capital	2.46				
Add:- Retained Profit	4.01	6.49	9.57	12.57	15.86
Less:- Drawings	3.50	4.00	6.50	9.00	11.80
Closing Balance	**2.97**	**5.46**	**8.53**	**12.10**	**16.16**
Term Loan	16.80	12.60	8.40	4.20	-
Working Capital Limit	3.28	3.28	3.28	3.28	3.28
Sundry Creditors	1.38	1.69	2.03	2.39	2.79
Provisions & Other Liability	0.80	0.96	1.15	1.20	1.44
TOTAL :	**25.22**	**23.98**	**23.39**	**23.17**	**23.67**
Assets					
Fixed Assets (Gross)	21.00	21.00	21.00	21.00	21.00
Gross Dep.	3.15	5.83	8.10	10.04	11.68
Net Fixed Assets	**17.85**	**15.17**	**12.90**	**10.96**	**9.32**
Current Assets					
Sundry Debtors	1.97	2.46	2.95	3.49	4.07
Stock in Hand	3.05	3.70	4.40	5.16	5.99
Cash and Bank	1.36	1.35	1.54	1.76	1.89
Loans & Advances /Other Current Assets	1.00	1.30	1.60	1.80	2.40
TOTAL :	**25.22**	**23.98**	**23.39**	**23.17**	**23.67**

PROJECTED CASH FLOW STATEMENT

(in Lacs)

PARTICULARS	1st year	2nd year	3rd year	4th year	5th year
SOURCES OF FUND					
Own Margin	2.46				
Net Profit	4.08	7.02	11.00	15.28	19.97
Depreciation & Exp. W/off	3.15	2.68	2.28	1.93	1.64
Increase in Cash Credit	3.28	-	-	-	-
Increase In Term Loan	18.90	-	-	-	-
Increase in Creditors	1.38	0.31	0.34	0.37	0.40
Increase in Provisions & Oth labilities	0.80	0.16	0.19	0.05	0.24
	-				
TOTAL :	**34.05**	**10.16**	**13.80**	**17.63**	**22.26**
APPLICATION OF FUND					
Increase in Fixed Assets	21.00				
Increase in Stock	3.05	0.65	0.70	0.76	0.82
Increase in Debtors	1.97	0.49	0.49	0.54	0.58
Repayment of Term Loan	2.10	4.20	4.20	4.20	4.20
Loans & Advances /Other Current Assets	1.00	0.30	0.30	0.20	0.60
Drawings	3.50	4.00	6.50	9.00	11.80
Taxation	0.08	0.53	1.42	2.71	4.12
TOTAL :	**32.70**	**10.17**	**13.62**	**17.41**	**22.12**
Opening Cash & Bank Balance	-	1.36	1.35	1.54	1.76
Add : Surplus	1.36	-0.01	0.19	0.22	0.13
Closing Cash & Bank Balance	**1.36**	**1.35**	**1.54**	**1.76**	**1.89**

CALCULATION OF D.S.C.R

PARTICULARS	1st year	2nd year	3rd year	4th year	5th year
CASH ACCRUALS	7.16	9.17	11.85	14.51	17.50
Interest on Term Loan	1.86	1.64	1.17	0.71	0.25
Total	9.01	10.80	13.02	15.22	17.75
REPAYMENT					
Instalment of Term Loan	2.10	4.20	4.20	4.20	4.20
Interest on Term Loan	1.86	1.64	1.17	0.71	0.25
Total	3.96	5.84	5.37	4.91	4.45
DEBT SERVICE COVERAGE RATIO	**2.28**	**1.85**	**2.42**	**3.10**	**3.99**
AVERAGE D.S.C.R.					**2.68**

REPAYMENT SCHEDULE OF TERM LOAN

					Interest		11.00%
Year	**Particulars**	**Amount**	**Addition**	**Total**	**Interest**	**Repayment**	**Closing Balance**
1st	Opening Balance						
	1st month	-	18.90	18.90	-	-	18.90
	2nd month	18.90	-	18.90	0.17	-	18.90
	3rd month	18.90	-	18.90	0.17	-	18.90
	4th month	18.90	-	18.90	0.17		18.90
	5th month	18.90	-	18.90	0.17		18.90
	6th month	18.90	-	18.90	0.17		18.90
	7th month	18.90	-	18.90	0.17	0.35	18.55
	8th month	18.55	-	18.55	0.17	0.35	18.20
	9th month	18.20	-	18.20	0.17	0.35	17.85
	10th month	17.85	-	17.85	0.16	0.35	17.50
	11th month	17.50	-	17.50	0.16	0.35	17.15
	12th month	17.15	-	17.15	0.16	0.35	16.80
					1.86	**2.10**	
2nd	Opening Balance						
	1st month	16.80	-	16.80	0.15	0.35	16.45
	2nd month	16.45	-	16.45	0.15	0.35	16.10
	3rd month	16.10	-	16.10	0.15	0.35	15.75
	4th month	15.75	-	15.75	0.14	0.35	15.40
	5th month	15.40	-	15.40	0.14	0.35	15.05
	6th month	15.05	-	15.05	0.14	0.35	14.70
	7th month	14.70	-	14.70	0.13	0.35	14.35
	8th month	14.35	-	14.35	0.13	0.35	14.00
	9th month	14.00	-	14.00	0.13	0.35	13.65
	10th month	13.65	-	13.65	0.13	0.35	13.30
	11th month	13.30	-	13.30	0.12	0.35	12.95
	12th month	12.95	-	12.95	0.12	0.35	12.60
					1.64	**4.20**	
3rd	Opening Balance						
	1st month	12.60	-	12.60	0.12	0.35	12.25
	2nd month	12.25	-	12.25	0.11	0.35	11.90
	3rd month	11.90	-	11.90	0.11	0.35	11.55
	4th month	11.55	-	11.55	0.11	0.35	11.20
	5th month	11.20	-	11.20	0.10	0.35	10.85
	6th month	10.85	-	10.85	0.10	0.35	10.50
	7th month	10.50	-	10.50	0.10	0.35	10.15
	8th month	10.15	-	10.15	0.09	0.35	9.80
	9th month	9.80	-	9.80	0.09	0.35	9.45
	10th month	9.45	-	9.45	0.09	0.35	9.10
	11th month	9.10	-	9.10	0.08	0.35	8.75
	12th month	8.75	-	8.75	0.08	0.35	8.40

					1.17	**4.20**	
4th	Opening Balance						
	1st month	8.40	-	8.40	0.08	0.35	8.05
	2nd month	8.05	-	8.05	0.07	0.35	7.70
	3rd month	7.70	-	7.70	0.07	0.35	7.35
	4th month	7.35	-	7.35	0.07	0.35	7.00
	5th month	7.00	-	7.00	0.06	0.35	6.65
	6th month	6.65	-	6.65	0.06	0.35	6.30
	7th month	6.30	-	6.30	0.06	0.35	5.95
	8th month	5.95	-	5.95	0.05	0.35	5.60
	9th month	5.60	-	5.60	0.05	0.35	5.25
	10th month	5.25	-	5.25	0.05	0.35	4.90
	11th month	4.90	-	4.90	0.04	0.35	4.55
	12th month	4.55	-	4.55	0.04	0.35	4.20
					0.71	**4.20**	
5th	Opening Balance						
	1st month	4.20	-	4.20	0.04	0.35	3.85
	2nd month	3.85	-	3.85	0.04	0.35	3.50
	3rd month	3.50	-	3.50	0.03	0.35	3.15
	4th month	3.15	-	3.15	0.03	0.35	2.80
	5th month	2.80	-	2.80	0.03	0.35	2.45
	6th month	2.45	-	2.45	0.02	0.35	2.10
	7th month	2.10	-	2.10	0.02	0.35	1.75
	8th month	1.75	-	1.75	0.02	0.35	1.40
	9th month	1.40	-	1.40	0.01	0.35	1.05
	10th month	1.05	-	1.05	0.01	0.35	0.70
	11th month	0.70	-	0.70	0.01	0.35	0.35
	12th month	0.35	-	0.35	0.00	0.35	-
					0.25	**4.20**	

DOOR TO DOOR	60	MONTHS
MORATORIUM PERIOD	6	MONTHS
REPAYMENT PERIOD	54	MONTHS

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