



TRICHIKRO

An E-Rickshaw Industry: Made in Bangladesh

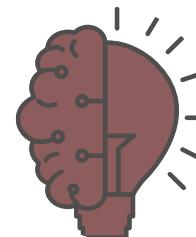
TRI CHOKRO

DEPARTMENT OF MECHANICAL ENGINEERING
BUET, DHAKA-1000



TRICHOKRO

OUR INDUSTRY IN A NUTSHELL



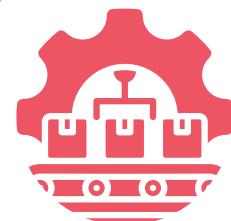
Inspiration: BUET proposed Easy Bike



8 major problems will be solved



Four different product models



Bangladesh's fully locally manufactured electric autorickshaw



Made in Bangladesh rather than imported from China



Made for Bangladesh

PROBLEM STATEMENT

JU student dies after being hit by battery-run rickshaw, protests erupt for justice

The deceased, Afsana Karim Rachi, was a student of the 53rd batch of the Marketing Department at the university. She was a resident student of Begum Khaleda Zia Hall



Two Motorcyclists Die After Being Hit by Bus in Banasree Following Auto-Rickshaw Collision

Source: TBS | Image/Video: Collected | April 30, 2025

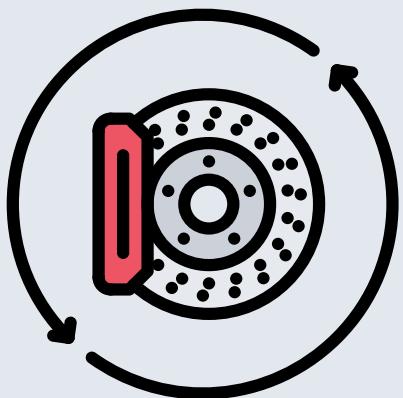


Since 2010, electric rickshaws became popular across Bangladesh, but Dhaka's authority restricted them due to safety concerns. But after the government fell in August 2024, law enforcement weakened. As a result, unsafe electric rickshaws flooded Dhaka's roads, causing frequent accidents.

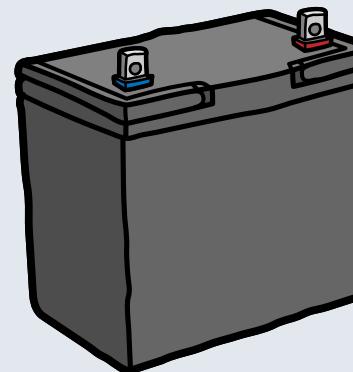
PROBLEM STATEMENT

WHAT'S REASON BEHIND THOSE ACCIDENT?

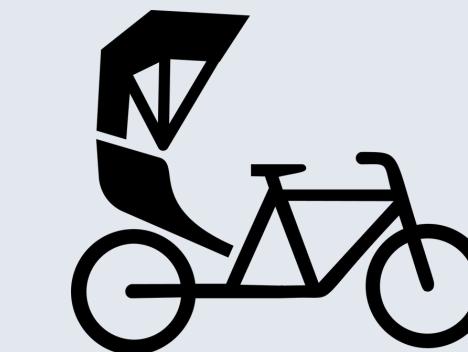
MAJOR ENGINEERING FAULTS



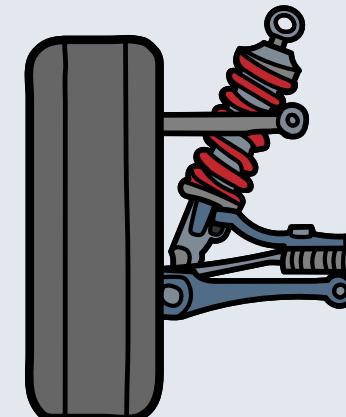
Non Existing
Breaking system



Inferior Battery Technology
And less Eco friendly



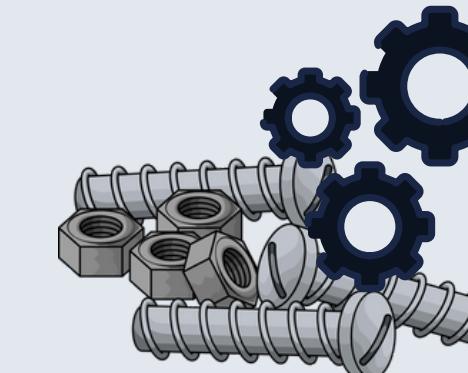
High Aerodynamic
Drag



Poor suspension



Low load capacity wheel
and high center of gravity



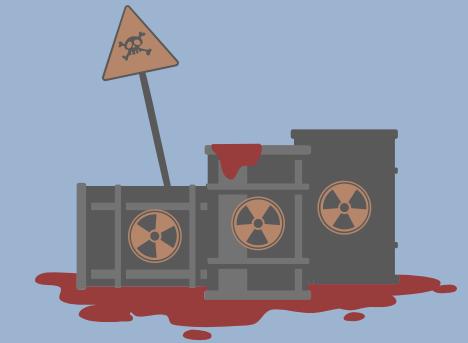
Poor structure
and material

ENVIRONMENT PROBLEMS



CNG and fossil fuel-powered vehicles release CO₂, NO_x, and particulate matter, worsening public health and climate impact.

Air pollution



Widespread use of low-quality imported e-rickshaws leads to rapid battery degradation and improper disposal of toxic lead-acid batteries.

Non-recyclable batteries



Lack of recycling in vehicle production increases industrial waste, strains natural resources, and adds to landfill pressure.

Industrial waste



In densely populated cities like Dhaka. The excessive noise from traditional engines further deteriorates urban livability.

Noise Pollution

EXISTING SOLUTION

7 BUET's Proposition
Needs modification

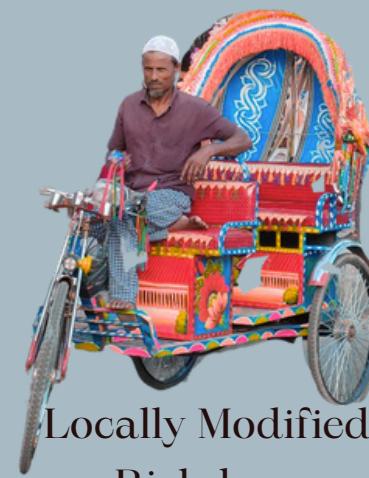
6 Chinese Imported
Import based and costly

3 Locally modified rickshaw
Major Engineering faults

EXISTING MODELS:



Imported Chinese
Easy Bike



Locally Modified
Rickshaw

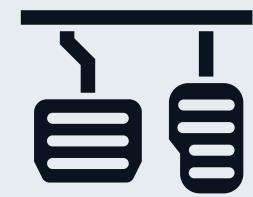


BUET-BEPRC
Easy bike Model

ROOM FOR DEVELOPMENT:

- Cost can be lower
- Better Suspension
- Modified Design
- Larger Wheel
- BRTA License

TRICHOKRO SOLUTION



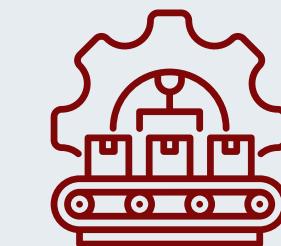
Good Breaking System



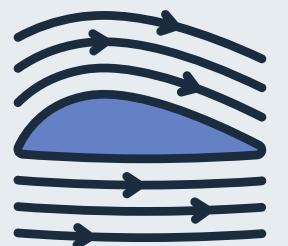
**Lower Acceleration
Suitable speed**



Proper Suspension and Wheel



**Designed & Innovated
for Bangladeshi Road**



Better Hood Aerodynamics



Safety Equipment & regulation



**Lower cost than
counter part**

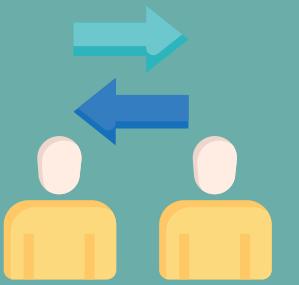


**Longer Battery Life
Rickshaw Paint Culture
& many more**

ENVIRONMENTAL SUSTAINABILITY IN TRICHOKRO



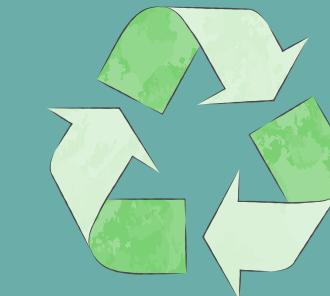
Noise and
Pollutionless Road



Interchangeability
and Repairability



Employment of
Educated Youth



Low Carbon Emission
better recyclability



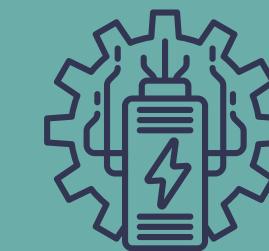
Trained, Skillful driver
than CNG



Safety regulation
less accidents



Reliable in Sunny &
Rainy weather (IP69)



Battery Tech that is not
harmful to Environment

COMPETITION & MARKET ANALYSIS

Specification



PEDAL RICKSHAW



AUTO RICKSHAW



CNG



TRICHOKRO

Suspension

False Leaf Spring

Helical spring

Spring Suspension

mcperson suspension

Brake

Rubber pad brake

Rubber/drum brake

Disk brake

Disk Brake

Cost

Lower cost around 20k bdt

Medium cost around 120-150k bdt

Higher cost arround 250k-300k bdt

Medium cost arround 120k

Seat Capacity

2

3

3

5

Comfort and suspension

Less

Good

Better

Better

Safety

High risk

Medium risk

Medium risk

Less risk, more safe

MARKET SIZE

NATIONWIDE

19.6 MILLION

RICKSHAW PULLER

5 MILLION

RICKSHAW

DHAKA

2.2 MILLION

RICKSHAW PULLER

1.1 MILLION

PADEL RICKSHAW

2 LAKH

AUTO RICKSHAW



MARKET SIZE AND COMMERCIALIZATION

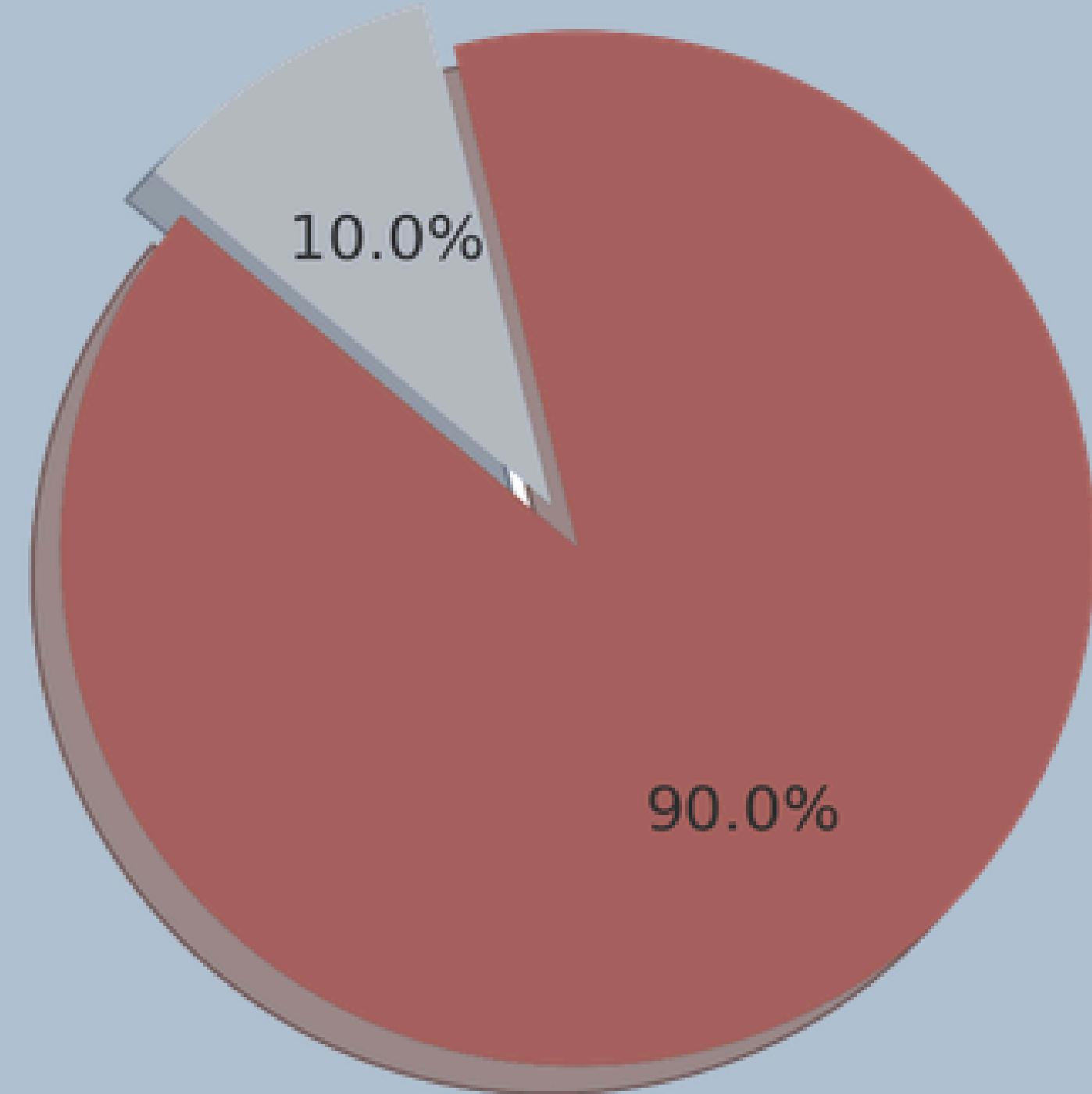


Estimated Total Addressable Market
(TAM)

Total 1.5 lakh vehicles in Dhaka
1,60,000 BDT per vehicle

$$\begin{aligned}1,50,000 \times 1,60,000 \\= \text{BDT } 2,400 \text{ Cr} \\(\sim \$240 \text{M USD})\end{aligned}$$

Our 3 years share 10% of TAM



We will acquire 10% of the market
within 2 years

GO TO MARKET STRATEGY

Targeted Customer

- Electric rickshaw drivers (urban & rural)
- Garage owners & local assemblers
- NGOs & microfinance or charity foundation
- Last-mile logistics companies

Marketing Strategy

Awareness

- Test report and proper documentation

Recommendation from Experts

- BRTA lisence

This will get govt recognition through testing and standardization.

- Local Market Walk-ins

Early engagement in Dhaka's hubs

Engagement

- Demo Days & Test Rides

Booths, discounts, driver feedback

- Garage Partnership Program

Commissions, branding kits

- Microfinance Tie-Ups

Affordable installment options

Loyalty & Feedback Loop

- Branded Fleet

TriChokro will introduce artistic rickshaw paint again

- App & Hotline

Driver support and service help

- Driver Stories

Social media group for trust-building

BUSINESS MODEL

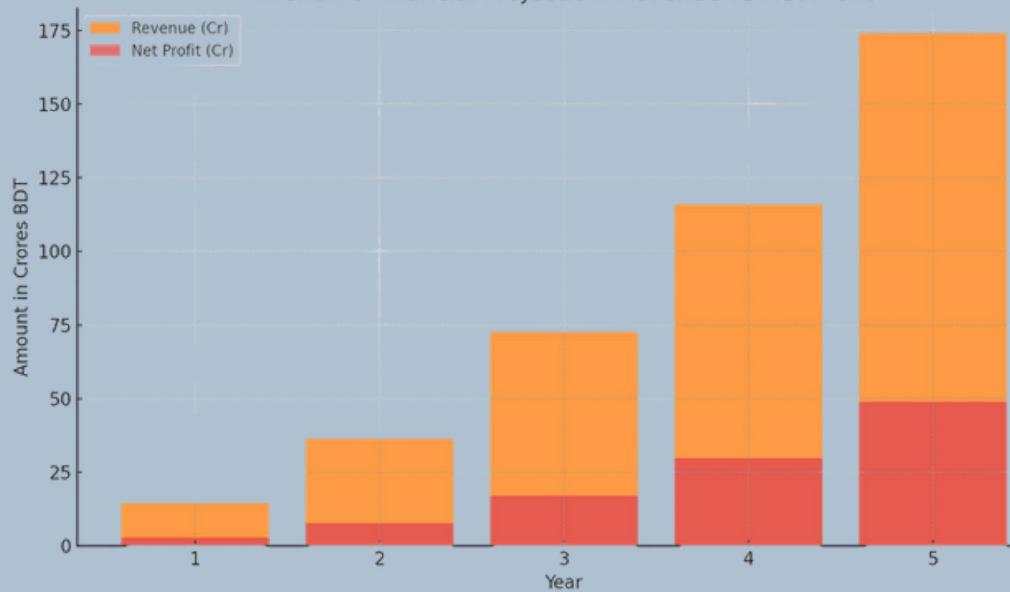
COST ANALYSIS

Component	Cost	Remarks
Chassis & Frame	40000	Mild steel tube structure (locally)
Electric Motor (1 kW)	8000	Initially imported from India/China
Battery Pack (48V, 100Ah, Lead Acid)	55000	Supplied by Rahim Afroz and HAMCO
Electrical Accessories & Components	3000	Includes lights, switches, wiring
Suspension & Braking Systems	15000	Mechanical components
Paint, Finishing, and Distribution	5000	Surface treatment, branding, logistics
Testing and Miscellaneous	3000	Quality control, design validation
Total Estimated Cost	129000	±5% variation depending on scale

1 YEAR REVENUE

Item	Value (BDT)
Selling Price (Per Unit)	1.6 Lakh
Total Revenue	16 Cr
Cost per Unit (Material +	1.29 Lakh
Total Production Cost	13 Cr
Gross Profit	3 cr
Fixed Overheads	0.5 Cr
Net Profit	2.5 Cr
Net Margin	~15-20%

TriChokro Financial Projection: Revenue vs Net Profit



5 YEAR PLAN

Year	Units Sold	Per Unit Price	Total Revenue (Cr)	Cost Per Unit	Gross Profit (Cr)	Fixed Cost (Cr)	Net Profit (Cr)	Net Margin
1	1000	160000	16	129000	31	5	26	1.630%
2	2500	145000	3.625	110560	861	1	761	2.100%
3	5000	145000	725	107640	1.868	2	1.668	2.300%
4	8000	145000	116	103550	3.316	3	3.016	2.600%
5	12000	145000	174	101067	5.272	4	4.872	2.800%

5 YEARS PROFIT ANALYSIS

UVP & SDG GOAL

3P

People



CUSTOMER

- Faster movement
- Low Transportation cost
- Comfortable & Noiseless trip
- More safe

RICKSHAW OWNER

- Reduced Physical Strain
- More trip
- Higher Daily Earnings
- Safety improvement

COUNTRY

- Safe Road
- Higher average Road Velocity
- economical raise
- Less Road Accidents
- Better transport system

Planet

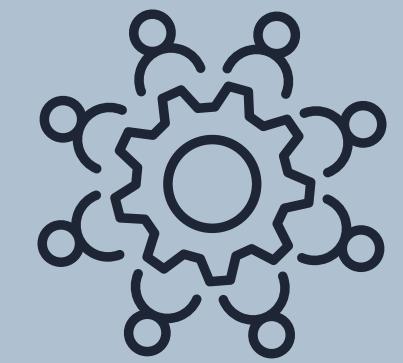


PLANET

- Reusable battery
- Sustainable design
- zero pollution in road
- More efficiency
- less carbon emission

PROFIT

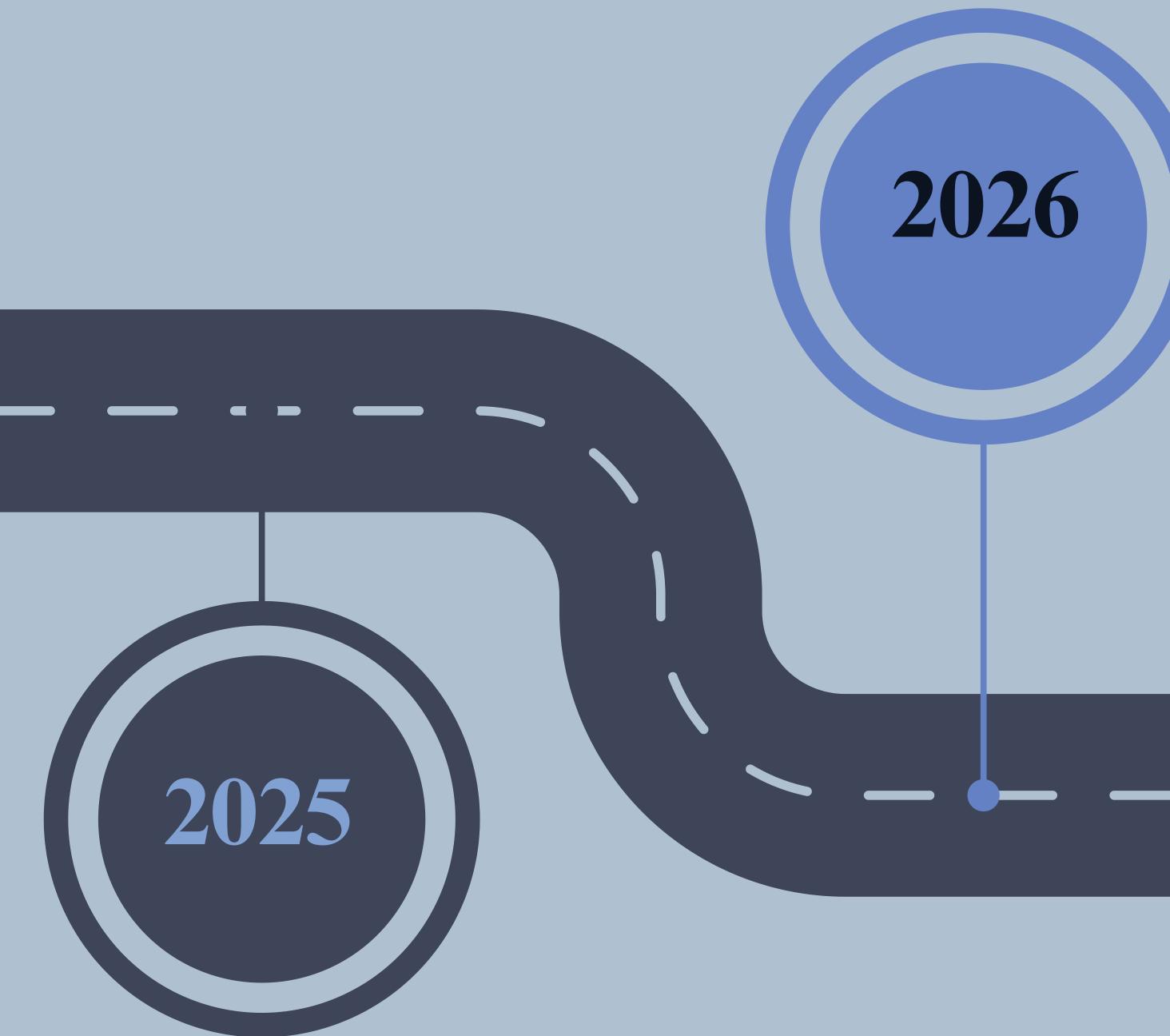
- Reduced Maintenance
- Higher Demand
- Long-Term ROI
- Environmental and Branding Benefits
- Cultural revolution



TIME LINE

Unicorn

Mass Production



Prototyping

All variations of
model and growth

PRODUCT TYPE AND PRICING

Base Model

1.8

LAKH

Weather Sealed

2

LAKH

CNG alternative
High speed-range

2.5

LAKH

Challenging &
Rugged Terrain

3

LAKH
BDT

OUR EXPECTED INVESTMENT

We want to raise around 110 Crore Bangladeshi Taka which will come from Angel Investors, NGO & Board of Members.

Total Estimated Investment: BDT 8 Crore - 15 Crore

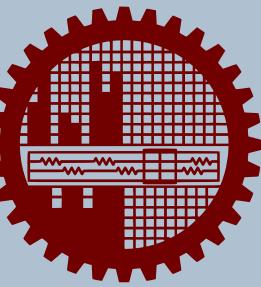
Cost Category	Estimated Investment (BDT)
Factory Setup & Machinery	3.0 - 6.0 Crore
Initial Inventory	3.0 - 5.0 Crore
First-Year Working Capital	1.0 - 2.0 Crore
Research & Development (R&D)	0.4 - 0.8 Crore
Contingency Fund	0.6 - 1.2 Crore
TOTAL	BDT 8.0 - 15.0 Crore

UVP	Key Activities	Problem	Business Model	Customer Segments
Unique value Proposition I. Low cost, high return. II. Safety, more safe road. III. BRTA approved design. IV. BUET's manufactured. V. Cultural Rickshaw Paint. VI. Positive response from BUET engineers and professors. VII. Lower health hazards of rickshaw puller. VIII. Faster controlled, noiseless transportation with better comfort. 3	We have some brilliant minds as our Team member: <ul style="list-style-type: none">◦ Prof. Ehsan (Former Dean of Dept. of ME, BUET)◦ A group of BUET Alumni who has PhD degree and experience in Germany, USA, Italy and Japan. 6 Cost Structure 4 design and we will add more 3 designs. <ul style="list-style-type: none">• Low-cost existing Dhaka Rickshaw – 80K• Moderate cost hood framed auto – 120K• Fully covered auto rickshaw– 160K 7	Problems: I. High rate of road accidents, inferior braking system. II. No road permit, traffic police raid. III. Manufactured structure is poor. Existing Solution <ul style="list-style-type: none">• Imported Chinese Auto Rickshaw• BUET-BEPRC Easy bike model• Locally modified Rickshaw 2	<ul style="list-style-type: none">• B2C• B2B• Selling website• Experience center• Foreign Cultural Contest• Showroom all over the globe. 5 Unfair Advantages <ul style="list-style-type: none">I. Innovative model ideas.II. Engineering prototype.III. Simulation and testing facilities.IV. Fresh thinking, out of the box. 9	Customer <ul style="list-style-type: none">• Rickshawala or investor• NGO, Garage owner• Training Institution• Campus shuttle (DU, BUET) Consumers <ul style="list-style-type: none">• People and citizens• Industry based on transport• Students of universities• Emergency patient and hospital Early Adopters <ul style="list-style-type: none">• Existing Rickshawala• Unemployed educated people• Self-reliance project interested 1

Solution	Revenue Streams
TriChokro 8 Solutions I. Good braking system II. Better hood technology and aerodynamics. III. Lower acceleration, suitable speed IV. Research and developed for Bangladesh's road. V. Proper suspension system VI. Lower cost than counterpart VII. Safety equipment and regulation. VIII. Better battery technology 4	<ul style="list-style-type: none">• Average unit selling price – 150K• Units produced – 1000• Total earning – 15 Cr.• Cost of unit – 120K• Total cost – 12 Cr.• Revenue – 3 Cr.• Fixed overhead – 0.5 Cr.• Gross Profit – 2.5 Cr.• Profit margin – 17% <p>In real life profit margin would be (15-20%) which will be reinvested.</p> 6



An E-Rickshaw
Industry
Made in Bangladesh



TRICHOKE

TEAM MEMBERS



PROF. MD. EHSAN

DEPARTMENT OF ME, BUET
FACULTY ADVISOR

30 YEARS OF EXPERIENCE
AS AN AUTOMOBILE
ENGINEER AND PROJECT
LEAD



ROWNAK SHAHRIAR RUHAN

TEAM LEADER
ME, 4TH YEAR

BUSINESS
ENTREPRENEURSHIP AND
MANUFACTURING.
FOCUSED MAJOR-
AUTOMOBILE ENGINEERING



M.D. MIJANUR RAHMAN

SIMULATION LEAD
MECHANICAL ENGINEERING

GRADUATE
CORPORATE JOB
EXPERIENCE AND
ORGANIZATION MANAGING



HASAN MAHMUD

DESIGN LEAD
ME, 4TH YEAR

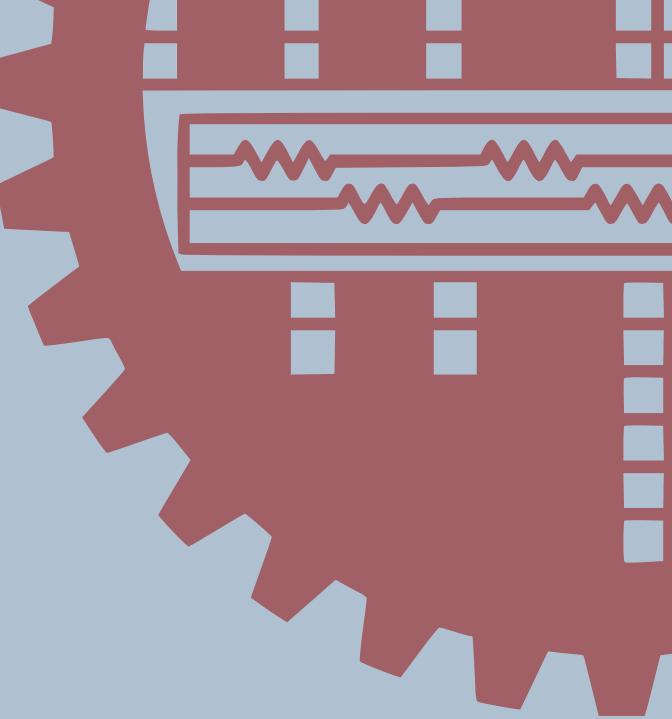
FOCUSED MAJOR-
STRUCTURAL MECHANICAL
ENGINEERING



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Thank You



LET'S COLLABORATE WITH
Team TriChokro

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