

Project Title : Continues Carbon Fibre 3D Printing

Sparkle ID:SP21C001235

Team Members: Rahul Autade

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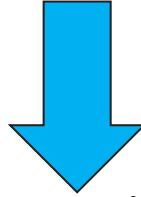
Sarvesh Deshmukh

Problem Statement:

Potential



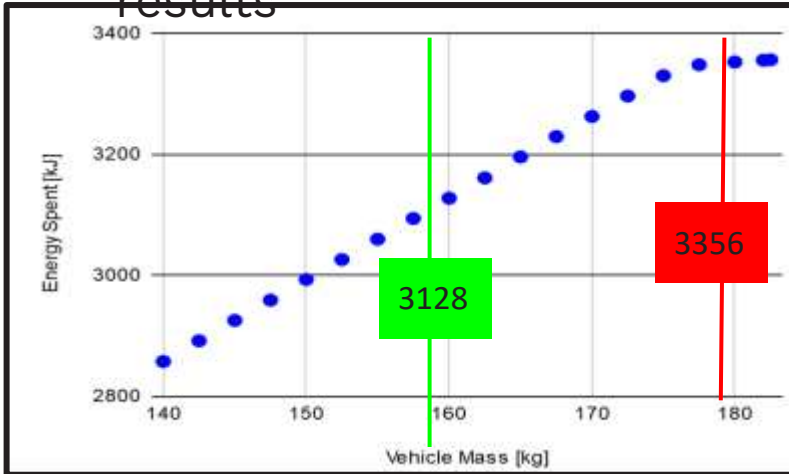
12% Weight Reduction.



1.65 MT of CO2 Reduction Per Car

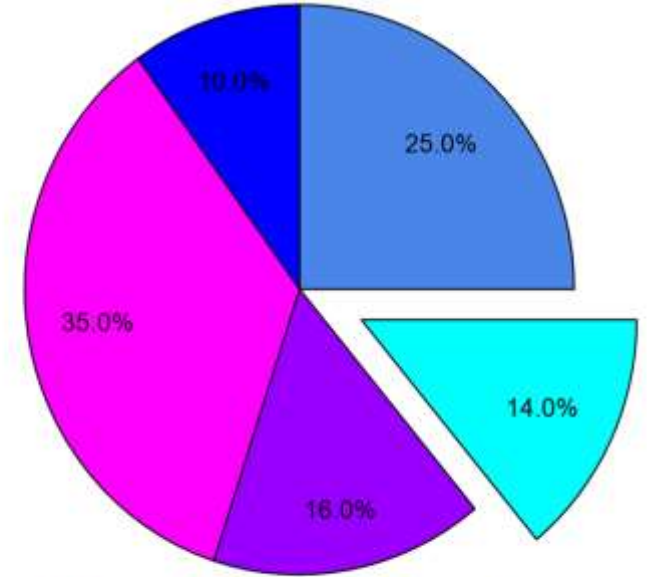
10 X Specific Strength Steel

Lap Time simulation results



6.8% less energy spent

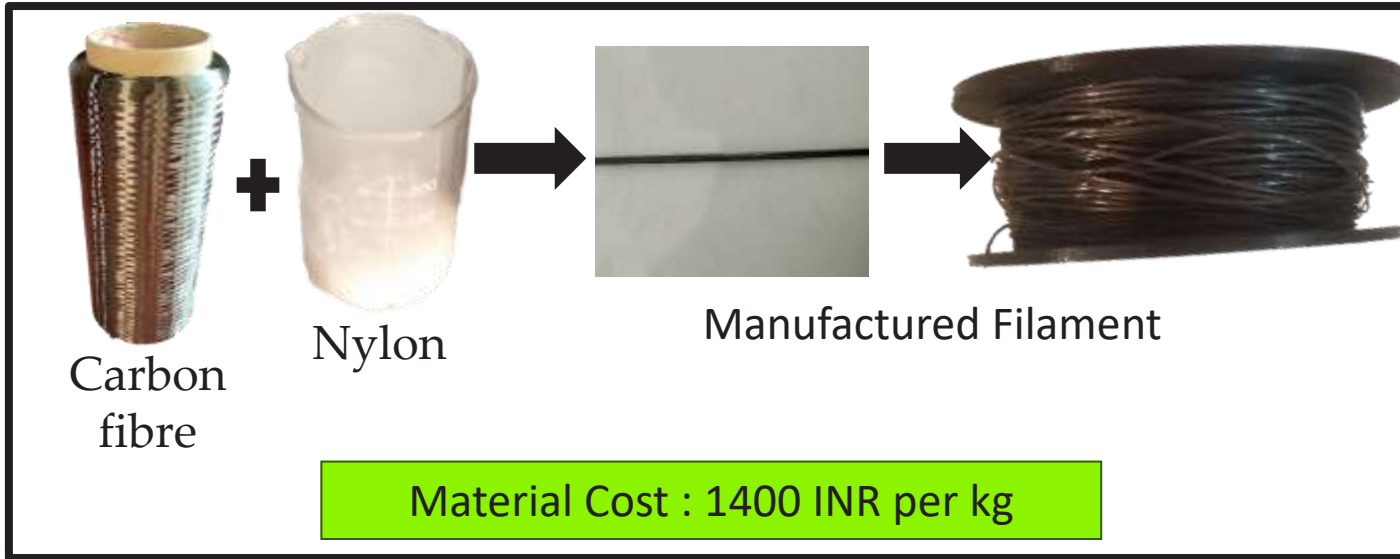
Problem



● Labour ● Material ● Tooling ● Equipment ● Overhead cc



Solution



Surface Finish	Tolerance	Specific Strength
<ul style="list-style-type: none">Nylon Printing On Surface	<ul style="list-style-type: none">±0.1mmPost Processable	<ul style="list-style-type: none">1.4 X Mild Steel

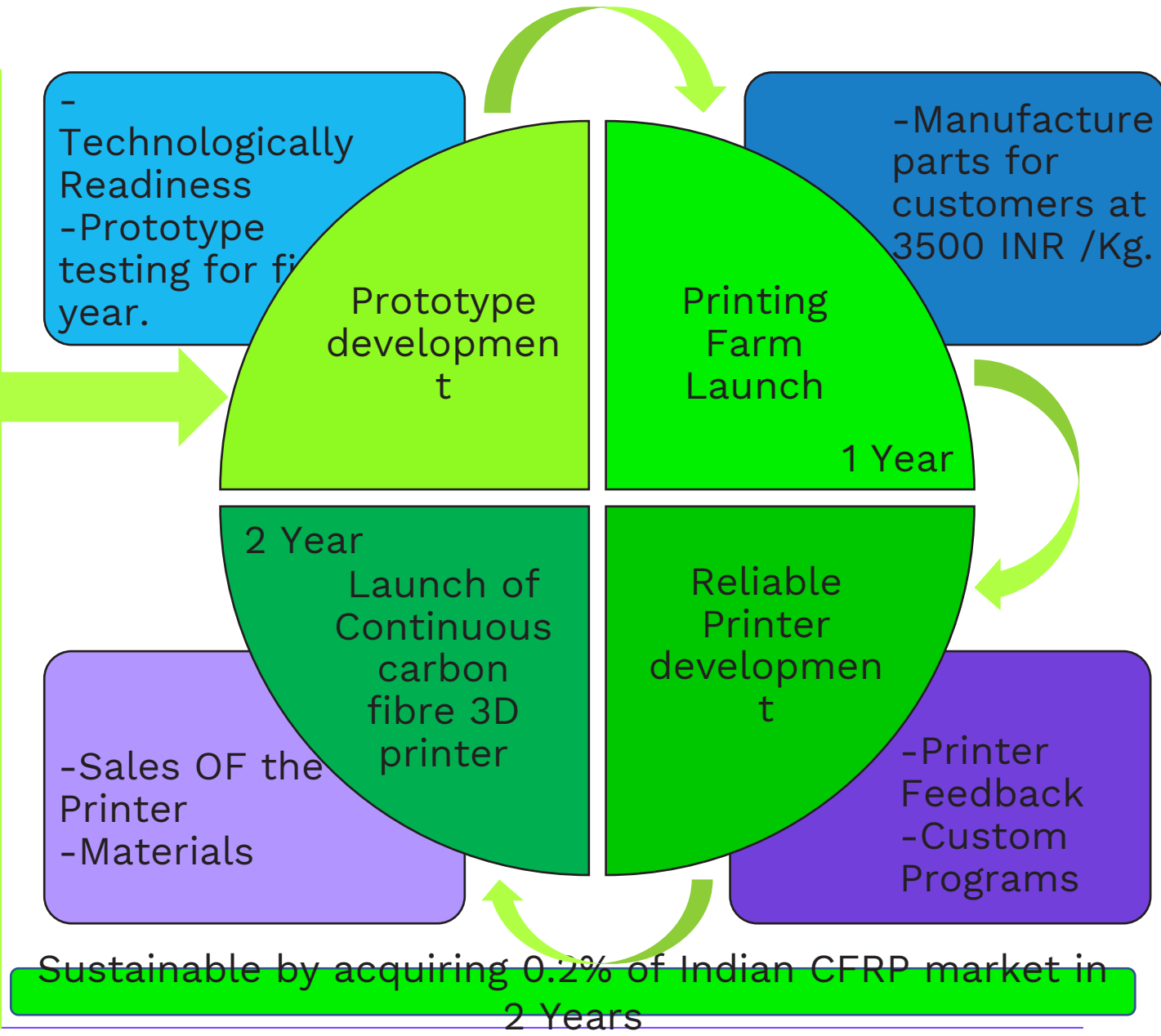
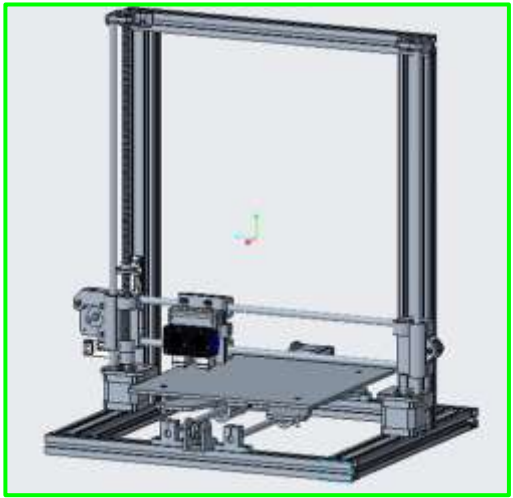
Printer Cost	• 30,000 INR
Part Cost	• 3700 INR/Kg
Print Time	• 26 Hours/Kg

Innovation



Pultrusion Dual Die system For 3K
Patent No:202121005849

Manufactured filament compatible
3D printer



Customer Value Proposition



Subtractive
manufacturing



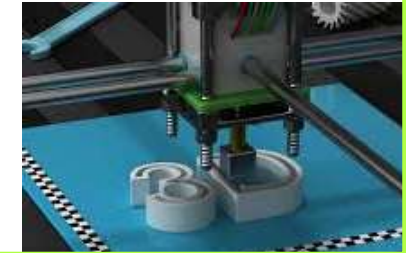
Specialized
manufacturers are
required



-Topological
optimization
-30% Weight
Reduction.



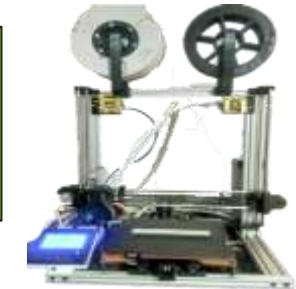
-Production
Rate
=26Hr/Kg



-Moulds
-Labour
-Equipment



-Printer=35K INR
-Material=1.4K INR
-Parts Price=4-7K INR



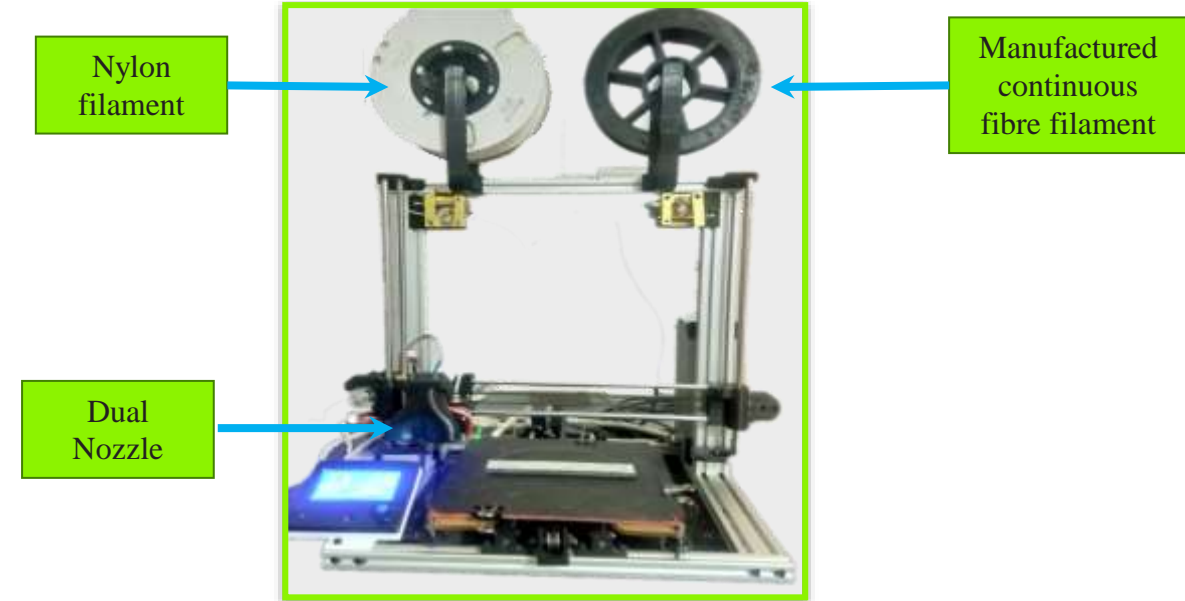
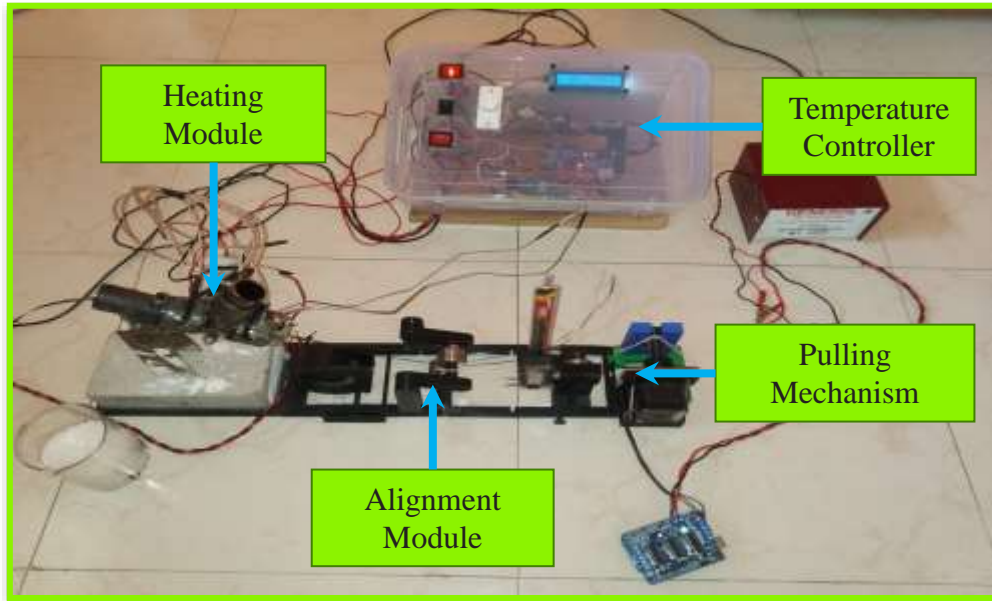
FRP Post
Processing



-Automated
-Recyclable



Description of your prototype



Advantages over competition



First Mover



Vertical Integration



Geographical Advantage



Low cost approach

Market Potential


Obtainable Market of India 362 Cr. INR

Possible Replacement Percentage of Parts

Sector


Environmental Impact

12%
Automotive Sector



50 Tons of CO2 reduction per vehicle

42%
Aerospace Sector



1400 Tons of CO2 reduction per aircraft

5%
Sports Goods



Low Cost, Recyclable, Customize Equipment

2%
Medical Sector



Customize Equipment According to Need

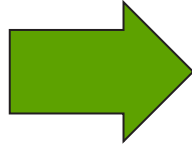





Current status

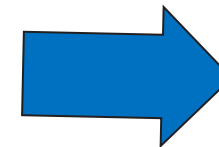
Current Status: TRL 5

- Specific Strength 1.4 X Mild Steel.
- Pultrusion Setup With Production Rate 30m/Hour
- Nylon Printing On Top and Bottom.
- Close to Intended Performance



4 To 5 Months : TRL 6

- Improve Print Density to 1.3g/cm³
- Improve Specific Strength up to 2 X Mild Steel
- Implement Cutting Mechanism
- Pultrusion Setup for production Rate of 500m/Hour



1 Year : TRL 7

- Design Changes According To Feedback Of Manufacturers
- Specialized Code For Common Parts

- 'National Policy for Advanced Manufacturing'.
- 'Atmanirbhar Bharat'

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THANK YOU!

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