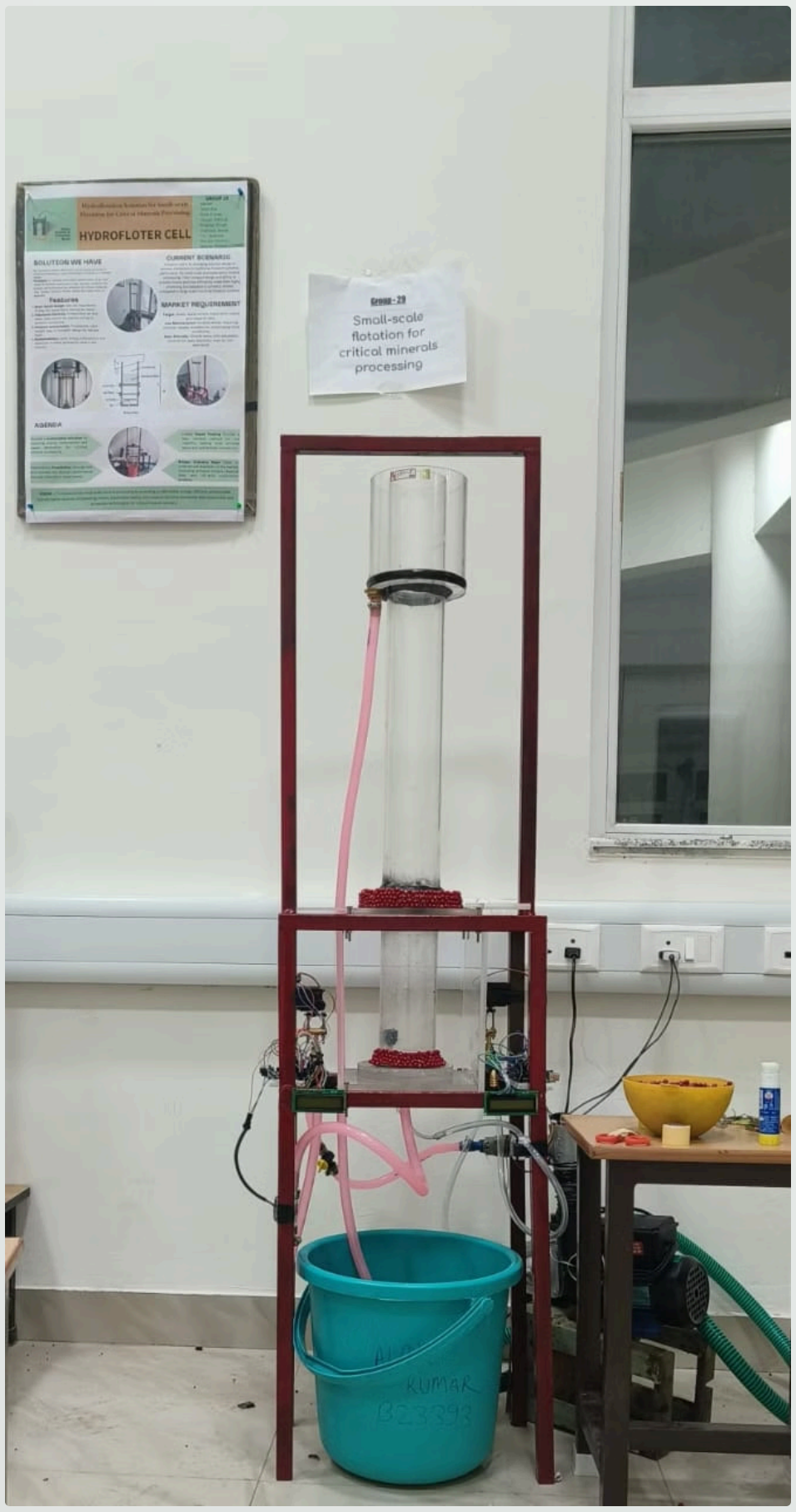
Small Scale Floatation for Critical Mineral Processing



This document outlines the market strategies and user manual for a new small-scale floatation system designed for critical mineral processing. The system leverages advanced technologies to enable efficient extraction and processing of rare earth elements, precious metals, and other critical minerals, even at a smaller scale. The guide covers key target customer segments, competitive advantages, commercialization plans, and detailed instructions for using the floatation system. The goal is to provide a comprehensive resource to support the successful introduction and adoption of this innovative processing solution.

1.Target Customer: Who Can be Benefit?

1 Mining Companies	Our solution is ideal for mining operations seeking to optimize critical mineral extraction on a smaller scale.
2 Processing Facilities	Processing plants can utilize our technology to enhance their efficiency and meet increasing demand for critical minerals.
3 Research Institutions	Academic and government research facilities can leverage our floatation prototype to advance their studies on critical mineral processing.
4 Startups and SMEs	Small and medium-sized enterprises in the mineral processing industry can benefit from the cost-effective and scalable nature of our solution.

Unique Features of the Model :

Compact Design	Our floatation prototype features a space-saving, modular design that can be easily integrated into existing processing facilities.
Automated Control	The device incorporates advanced digital controls and sensors for precise monitoring and adjustment of critical parameters.
Energy Efficiency	By optimizing the floatation process, our model achieves significant energy efficiency compared to traditional methods.
Scalable Capacity	The modular design allows for easy scaling to accommodate varying production requirements and processing capacities.

2.Highlighting the Advantages of the Model

The small-scale floatation system offers several unique advantages that set it apart from traditional mineral processing solutions:

1 Scalable and Modular Design

The system's modular components allow for easy scaling to match the processing needs of different operations, from small pilot plants to larger commercial facilities. This flexibility enables customers to start small and gradually expand their capacity as their business grows.

2 Enhanced Mineral Recovery

Advanced flotation techniques and process control algorithms ensure high recovery rates for target minerals, even in low-grade ores or complex mineral mixtures. This maximizes the yield and value extraction for the customer.

3 Lower Cost of Ownership

Compared to traditional flotation plants, the small-scale system requires lower upfront capital investment and reduced operating expenses, making it more accessible and affordable for smaller mining and processing operations.

4 Environment Friendly

The system operates without the use of frothers or other chemical reagents, enabling the water utilized in the process to be efficiently reused, making it both cost-effective and environmentally friendly.

5 On-Site Mineral Processing System

This system allows for efficient on-site mineral processing of newly discovered ore deposits, eliminating the need to transport the ore to a distant factory for testing. It provides a cost-effective and convenient solution for preliminary evaluations directly at the mining location

3.Why others will prefer ?

Here are some key points mentioned:

1. Uses only 1 to 2 kg of sample per test compared to at least 25 kg required in other small-scale fluidised bed flotation devices
2. Enhanced mineral recovery
3. Less cost in comparison to other traditional systems
4. Energy efficient
5. Environmental friendly

4.Introducing to Market

To successfully introduce the small-scale floatation system to the market, a multifaceted commercialization strategy will be implemented:

- **Requirements for scaling up:**

  1)Funding 2)Research Team 3)Research Lab

  4)Industry or Factory 5) Networking and Partnership

- **Must do's for Marketing:**

  1)Validation and Testing 2) Documentation 3)Compliance and Certification

  4)Cost Analysis 5)Market Research 6)Taking feedback from users and pgradation

5.Scalability and Customization:

The small-scale floatation system is designed to be highly scalable and customizable to accommodate the diverse needs of customers across the critical minerals processing industry.

Modular Expansion

The system's modular architecture allows for seamless expansion by adding more flotation cells, feed preparation units, and other components as the customer's processing requirements grow. This enables a smooth transition from pilot-scale to full commercial-scale operations.

Tailored Configuration

The system can be configured with a range of optional features and accessories to meet the specific needs of each customer. This includes customized automation and control systems, material handling equipment, and specialized reagent dosing systems, among other customizations.

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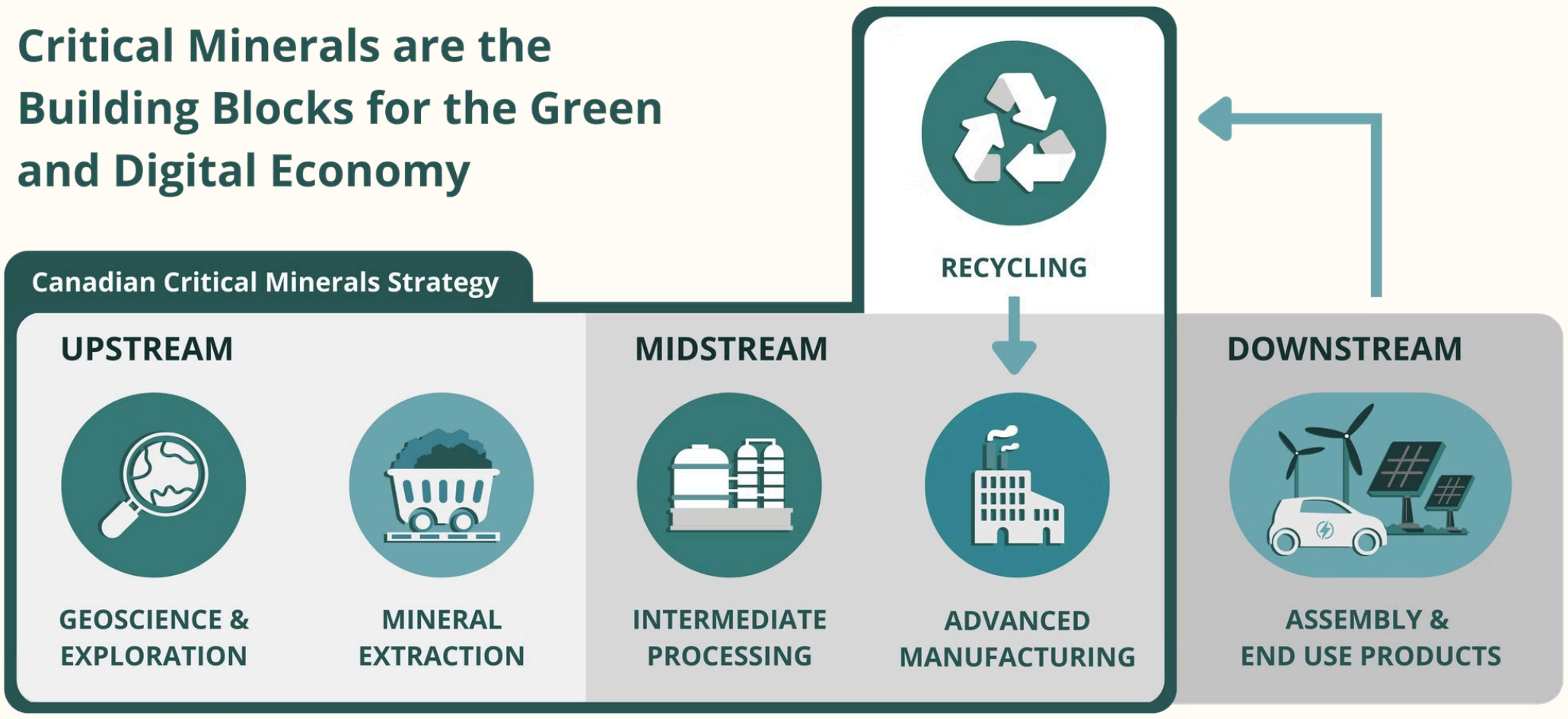
Versatile Applications

While primarily designed for critical minerals, the small-scale floatation system can also be adapted to process a variety of other valuable materials, such as industrial minerals, base metals, and recycled materials. This expands the system's potential customer base and ensures long-term relevance.

6.Conclusion:

The small-scale floatation system represents a transformative solution for critical mineral processing, addressing the unique needs of smaller mining and recycling operations. By offering a scalable, efficient, and cost-effective platform, the system empowers these customers to unlock the value of their mineral resources and contribute to the global supply of strategically important materials.



As the next steps, ongoing research and development efforts will also explore further enhancements to improve performance, expand versatility, and maintain the system's position as a leading-edge solution in the critical minerals processing landscape.

User Manual: Guiding Customers through the Product Usage

The small-scale floatation system is designed to be user-friendly and intuitive, with comprehensive guidance to ensure seamless integration and operation within the customer's mineral processing workflow. The user manual covers the following key areas:

1 System Overview

Components of this Floatation system:
Floatation Cell (Column), Stand, Sensors, Water Pump, Air Pump, Pipes e.t.c.

2 Installation and Commissioning

1)Put floatation cell on stand and tight it with screw.

2)Connect water pump to the bottom pin 1 of floatation cell through pipe. Also water sensor with water pump.

3)Connect air pump to the bottom pin 2 of floatation cell through pipe. Also air sensor with air pump.

3 How to use

Turn on the water pump and let the floatation cell fill completely with water. After that slow down the pump and put the ore inside the cell.

Now turn on the air and observe it. IF minerals are not separated yet then increase the velocity of air slightly and again observe it. You can see velocity of the air and water in the screen given with sensor. The hydrophobic part of the ore will be attached with air bubbles and will go upward and will be collected outside while hydrophilic part will stay inside cell.

Thus hydrophobic part of the ore will be separated by hydrophilic part.

4 Safety Instructions

1)Do not put too much ore in it because its rated capacity is 1-2 kg.

2) During process take care that the water doesn't sprinkle or spill on water pump or air pump.

3)In the starting do not open water pump or air pump in full speed.