

# SMART EMERGENCY BREATHER

A Frugal Innovation for Life-Saving Emergency Care

**Big Idea:** Breathing support anywhere, anytime!

**Essential Question:** How can frugal technology ensure life saving breathing support anytime, anywhere during emergencies?



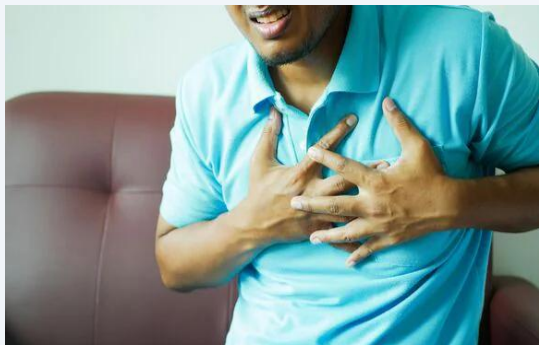
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# THE PROBLEM

**15 MIN**

Brain damage begins without oxygen



**4-6 MIN**

Critical window for intervention



**70%**

Medical emergencies occur outside hospitals

**DELAYED**

Ambulance response in rural areas



**Critical Situations Where Emergency Breathing Support Is Needed:**

- Cardiac arrest
- Choking incidents
- Respiratory failure
- Asthma attacks
- Drowning
- Smoke inhalation
- Allergic reactions
- Remote location emergencies

# WHY THIS INNOVATION MATTERS

## Delayed Medical Response

Average ambulance response: 15-30 minutes

Rural areas: 1+ hour



## Limited Availability

Medical equipment scarce in remote areas

First responders lack breathing aids



## Cost Barrier

Professional ventilators: ₹50,000-5,00,000

Out of reach for most households



## Time-Critical Need

Every second counts in breathing emergencies

Immediate intervention saves lives



# OUR SOLUTION

## SMART EMERGENCY BREATHER

A Portable, Affordable, Easy-to-Use Emergency Breathing Device

- ❑ Face mask with secure seal
- ❑ Manual pump for air delivery
- ❑ Adjustable flow control knob
- ❑ Portable & lightweight design



# DEVICE COMPONENTS

## Face Mask

Soft, medical-grade  
Seals around mouth &  
nose

## UV light and filter

Disinfect and purify  
the incoming  
ambient air

## Air blower

Delivers ambient air  
after being sterilized  
and purified



## Control Knob

Adjustable airflow  
Regulates pressure

## One-way Valve

Prevents backflow  
Ensures hygiene

## Charging Module

For charging the lithium  
ion battery enhancing  
the portability

# HOW IT WORKS - STEP BY STEP

## 1. Position the Mask



Place mask securely over patient's mouth and nose -  
Ensure proper seal

## 2. Set Airflow Level

Adjust control knob based on patient need - Start with  
low setting



## 4. Monitor Response

Check breathing, color, consciousness - Adjust flow as  
needed



## 5. Continue Until Help Arrives

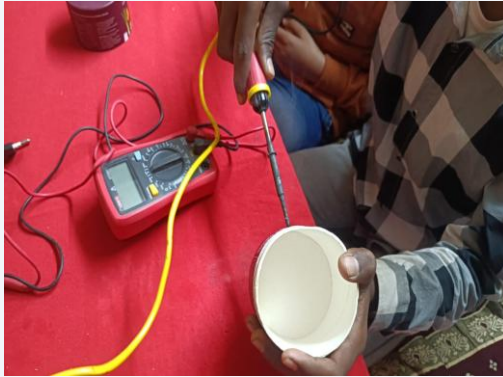
Maintain support until medical team takes over - Do  
not stop prematurely



## KEY FEATURES & BENEFITS

**Affordable**

**Frugal design**



**No electricity Needed**

**The pump  
Works anywhere**



**Portable**

**Lightweight  
Easy to carry**



**User-Friendly**

**Simple design  
Minimal training**

**Easy Maintenance**

**Durable parts  
Simple cleaning**

**Universal Use**

**Any location  
Any situation**

# SAFETY FEATURES

## Pressure Regulation

Control knob prevents over-inflation  
Safe pressure levels maintained

## Hygienic Design

Easy to clean and sterilize  
Disposable mask option available

## Visual Indicators

Clear markings on control knob  
Easy to monitor settings



## One-Way Valve

Prevents exhaled air from re-entering  
Reduces infection risk

## Secure Seal

Soft mask material for comfort  
Adjustable straps for fit

## Fail-Safe Design

Simple mechanism with no electronics  
Reliable in all conditions

# WHO CAN USE IT?

**Families**  
**Home emergency kit**



**Transport**  
**Buses, trains, flights**

**First Responders**  
**Police, firefighters**



**Outdoor Activities**  
**Hiking, camping**

**Schools**  
**Safety equipment**



**Rural Clinics**  
**Limited resources**

**Workplaces**  
**Factory, office safety**

**Travelers**  
**Personal safety kit**

# REAL-WORLD SCENARIOS

## Scenario 1: Rural Emergency

**Situation:** Patient collapses in village, medical center far away

**Solution:** Smart Breather provides immediate breathing support

**Outcome:** Lives saved in critical golden hour

## Scenario 2: School Incident

**Situation:** Students having severe asthma attack during class

**Solution:** Teacher uses Smart Breather while calling emergency

**Outcome:** Student stabilized, breathing restored

## Scenario 3: Road Accident

**Situation:** Accident victim struggling to breathe

**Solution:** Bystander with Smart Breather assists

**Outcome:** Breathing maintained, preventing brain damage



# FUTURE ENHANCEMENTS

Digital Pressure Monitor  
Oxygen Integration Option  
Mobile App with Instructions  
Child-Size Version  
Battery Backup Pump  
Mass Production Plans

# SOCIAL IMPACT

Healthcare Equity - Affordable for all  
Rural Healthcare - Addresses infrastructure gaps  
Citizen Empowerment - Anyone can help  
Emergency Awareness - Promotes preparedness  
Student Innovation - Youth solving problems



**Our innovation is in the line of the following SDG goals:**

**Goal 3: Good Health and Well Being**

**Goal 9: Industry, Innovation, and Infrastructure**

**Goal 10: Reduced Inequalities**

To watch our Students' Reflection Video please [click here](#)

To listen our podcast on the topic please [click here](#)

# CALL TO ACTION

Help Us Make This Innovation Reality!

Fund Development

Partner With Us

Spread Awareness

Provide Feedback

Manufacturing Support

Training Programs

# SMART EMERGENCY BREATHER

Affordable • Portable • Life-Saving



"When every breath counts, we provide hope."

A student-led frugal innovation  
to democratize emergency healthcare

Thank You All