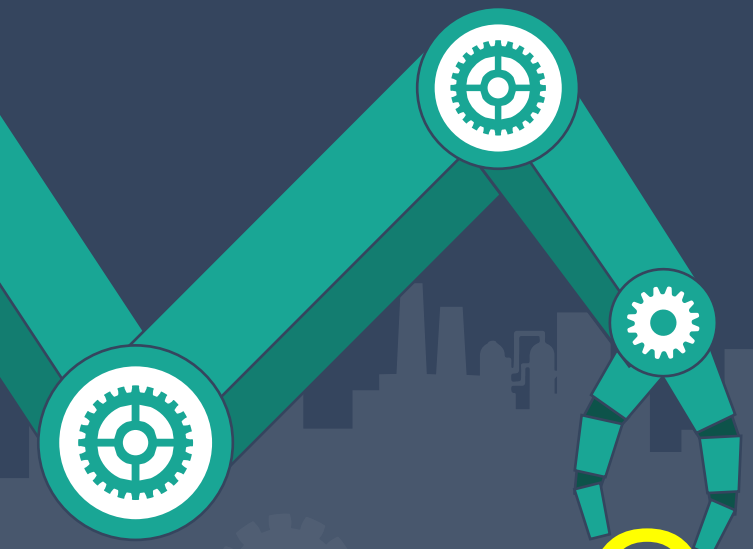
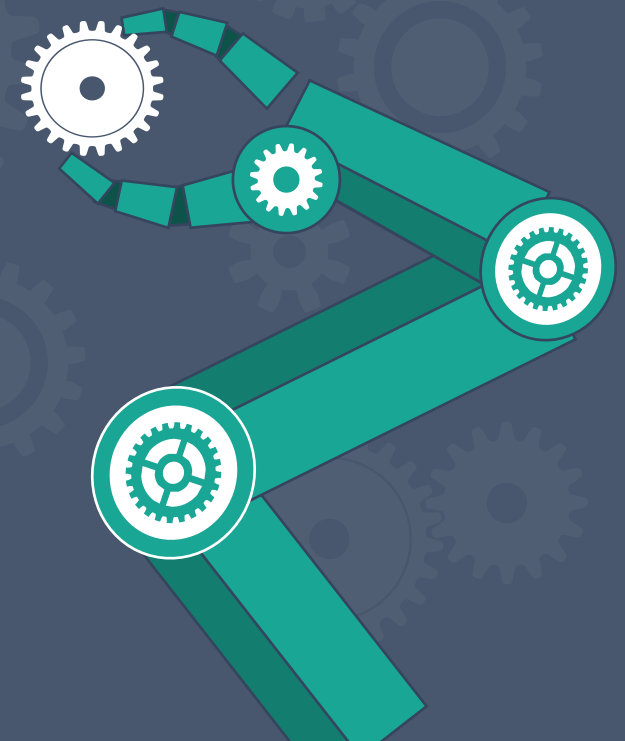


SMART BOREWELL RESCUE DEVICE



BY
THE COSMIC CREATORS

ABSTRACT

- Our project introduces a new cage structure for rescuing children who fall into borewells. It uses a clutch mechanism to lift the child safely and has a camera and light to help rescuers see and assess the situation. Polycarbonate glass protects the child from injuries during the rescue.

- The cage includes a bottom sealing plate and a half hinge to provide a stable platform, reducing the risk of bone dislocation. A microphone and speaker allow the child to communicate with rescuers, helping to reduce fear.

- Additionally, the device has an oxygen tube and sensors to ensure the child can breathe easily. This innovative design makes borewell rescues safer and more comfortable for the child, like a gentle elevator ride to safety.

INTRODUCTION

- India relies heavily on groundwater for agriculture, leading to the widespread use of bore wells. However, many bore wells are left uncovered after use, posing a significant danger as children can accidentally fall into them.

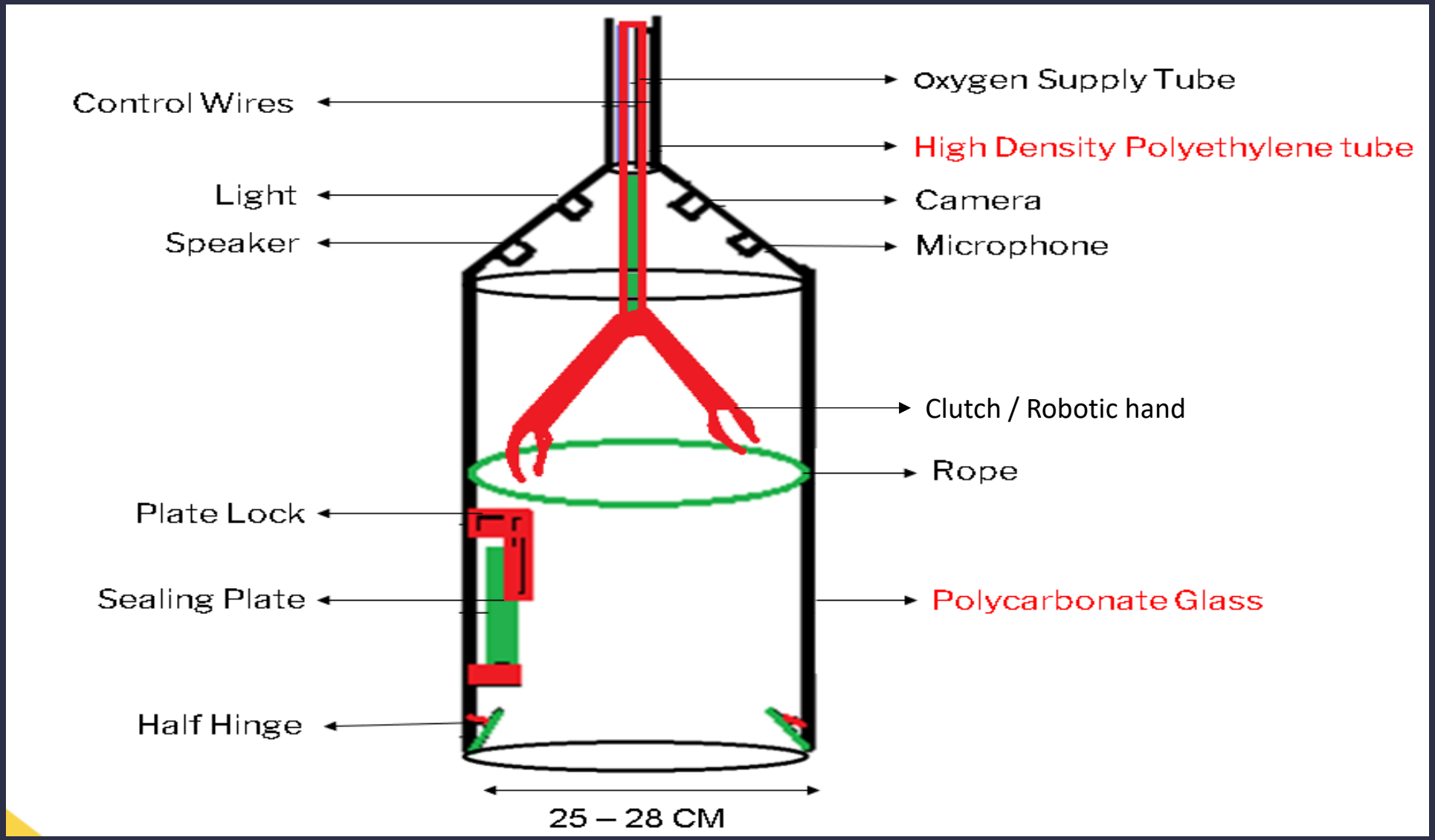
- This issue is prevalent in both urban and rural areas, with frequent reports of children getting stuck in bore wells. The problem is growing, highlighting the need for a solution.

- To address this, we, the Cosmic Creators, have developed a special rescue device. Our invention is a long cylindrical cage designed to safely and efficiently rescue children who fall into bore wells. Let’s explore the project details.

WORKING

STEP 1: Insert the rescue device into the borewell.
STEP 2: Stop one meter above the child's head and use lights and cameras to assess the situation.
STEP 3: Release the holder to gently lift the child into the device based on the collected data.
STEP 4: Once the child is secured, unlock and deploy the sealing plate to close the bottom of the device.
STEP 5: Monitor oxygen and CO2 levels with sensors, supply oxygen, and enable two-way communication to comfort the child.
STEP 6: Finally, lift the child out of the borewell, providing an elevator-like rescue experience.

DESIGN


Control Wires
Oxygen Supply Tube
High Density Polyethylene tube
Light
Camera
Speaker
Microphone
Clutch / Robotic hand
Rope
Plate Lock
Sealing Plate
Polycarbonate Glass
Half Hinge
25 – 28 CM

MODEL

Front view

Top view

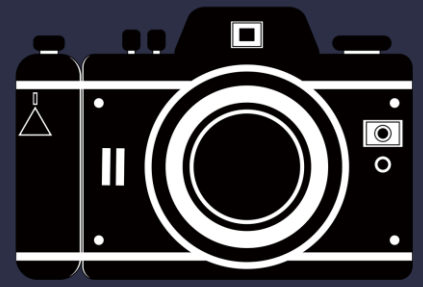
Bottom view

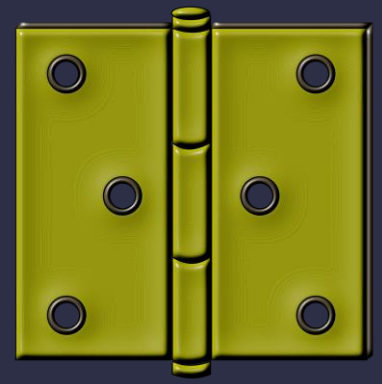
During Uplifting

After verification of successful uplifting

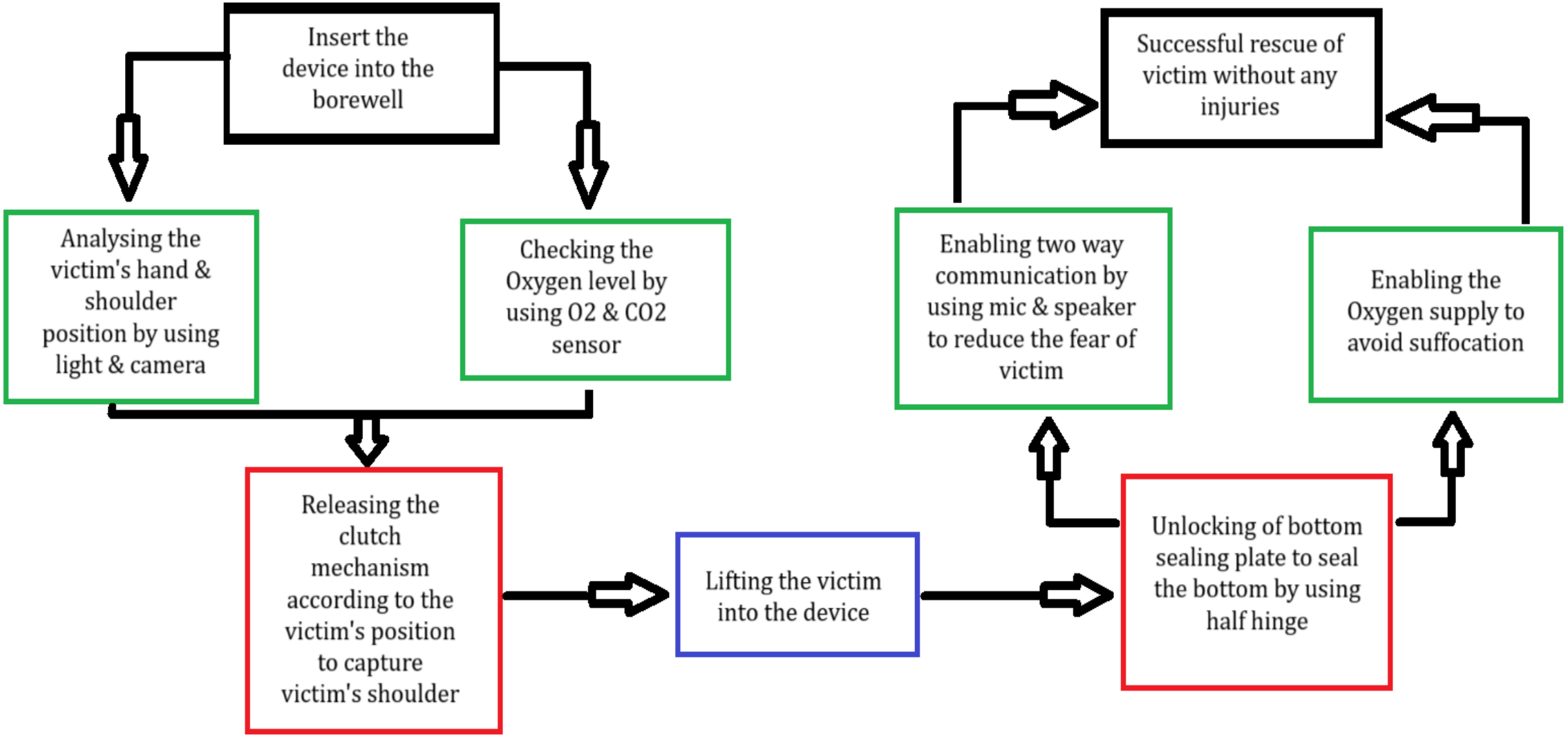
COMPONENTS

1. Polycarbonate glass
2. Microphone
3. Speaker
4. Oxygen Supply tube
5. O2 & CO2 Sensors (AA428-210)
6. LED Light
7. Trigger
8. Half hinge
9. High Density Polyethylene tube
10. Bottom sealing plate
11. Raspberry pi 4 (Model B)
12. Camera





FLOW CHART


Insert the device into the borewell
Analysing the victim's hand & shoulder position by using light & camera
Checking the Oxygen level by using O2 & CO2 sensor
Releasing the clutch mechanism according to the victim's position to capture victim's shoulder
Lifting the victim into the device
Unlocking of bottom sealing plate to seal the bottom by using half hinge
Enabling two way communication by using mic & speaker to reduce the fear of victim
Enabling the Oxygen supply to avoid suffocation
Successful rescue of victim without any injuries

FEATURES

- **Track** → The data which is displayed by the Camera, we can easily track the position of the child.
- **Safe** → The cage has a special clutch that gently lifts the child into the borewell.
- **Connection** → The child can talk to the rescuers using a microphone and speaker to feel less scared.
- **Live** → The device has a camera and light to help rescuers to see the child inside the borewell.
- **Prevention** → A strong bottom sealing plate seals the bottom after lifting the child, to prevent injury.

Uniqueness

- **Safe Rescue**: The cage has a special clutch to gently lift the child out of the borewell without harm.
- **Finding the Child**: A camera and light help rescuers see inside the borewell to locate the child quickly.
- **Protection**: Polycarbonate glass around the cage protects the child from outside harm.
- **Preventing Injury**: A strong bottom sealing plate prevents bone dislocation during the lift.
- **Comfort**: A microphone and speaker let the child talk to rescuers, reducing fear.
- **Breathing**: An oxygen tube and sensors ensure the child has enough air to breathe.

THANK YOU