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Five-Arm Robotic Lifter

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1. Abstract:

Borewells are being sunk due to water scarcity. Since most of these wells are left open, there is an enormous risk of a child falling into it. Deaths of more than 40 children due to these circumstances have been reported. The emotional pain due to such deaths is unbearable. Effective solutions for rescuing such children are still under study.

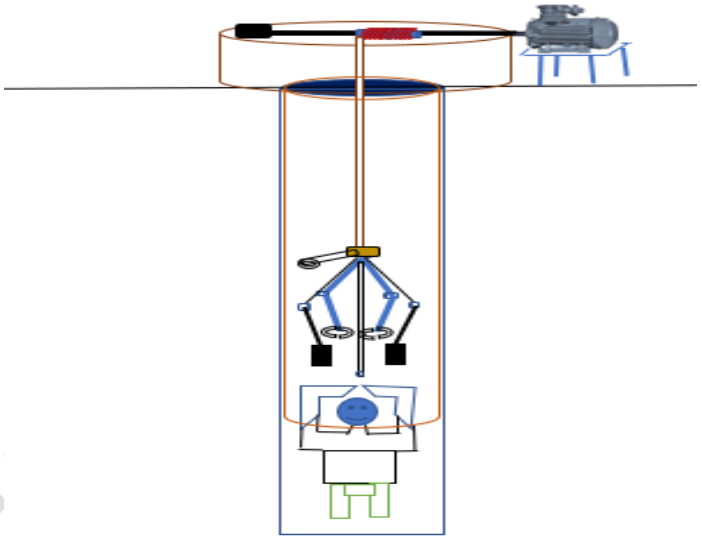
In this proposal, a solution to rescue a child fallen into a bore well is detailed. A five-arm robotic lifter can pass through the hole and using the multi-purpose arms are positioned appropriately to hold and lift the child safely to the top. The design uses a combination of Medical, Electronics and Mechanical components. The apparatus construction and working are detailed in the subsequent sections

2. MATERIALS REQUIRED:

- Motor,
- metallic rope,
- 5 arm robotic device,
- camera,
- oxygen supply,
- thick plastic cover,
- arduino UNO board,
- WiFi,
- ultrasonic sensors,
- servomotors,
- servomotors
- drivedriver

PROCEDURE FOR CHILD FACING IN THE UPWARD DIRECTION:

1.Initailly the lifter is mounted on top of the borewell hole.
2.A plastic cover layer is inserted to surround the sands at the sides.
3. A material rope can pass through the hole.
4. The material rope is fixed with a five-arm robotic lifter.
5. Two arms are used to hold the hands of the child.
6. Other two arms intrude into the sides for holding the child from the bottom. Each arm has a balloon with it for safety purposes. These balloons can be inflated by passing air.
7. Another arm is positioned above the head of the child for passing oxygen.
8. With the combined action of all the positioned arms, the child can be lifted safely.



.APARATUS

5.2. PROCEDURE FOR CHILD FACING IN THE DOWNWARD DIRECTION:

1. Initially, the lifter is mounted on top of the borewell hole.
2.A plastic cover layer is inserted to surround the sands at the sides.
3. A material rope can pass through the hole.
4. The material rope is fixed with a five-arm robotic lifter.
5.Two arms holds the leg of child tightly and safely.
6.Other two arms intrude into the sides for holding the child's head, each arm has a balloon with it for safety purposes. These balloons can be inflated by passing air, to hold the head of child safely.
7.Another arm is positioned near the child for passing oxygen.
8.The combined action of all thepositioned arms, the child can be lifted safely.