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## **Value Proposition & MUP Solution Concept**

## Rescue Sector | Automated Borewell Rescue System

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## #1 Value Proposition

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| * In this method a camera is attached with the apparatus and live monitoring of the child can be done. Along with the camera, an air quality sensor is attached with the oxygen supply to monitor the air quality and give oxygen supply to the child during the rescue process. * It will be a lightweight machine that will be setup easily into bore – well and hold the trapped body systematically. * In this technology, there will be no requirement of digging any hole parallel to the borewell. * The entire system is manually controlled by the user. It can replace all the old existing technology as it is safer and takes very less time. |

## #2 Solution Concept *(Proof of Concept/Minimum Usable Prototype)*

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| * This solution consists of a clamp like apparatus which is attached with a camera and an air quality monitoring system. * The infra-red camera is used to monitor the victim in real time and observe the movements during the rescue process. * It is also attached with a motion sensor so the motion can be observed accurately. * The air quality sensor is used to observe the quality of air inside the borewell. * This sensor gives the concentration of other gases excluding oxygen so that appropriate amount of oxygen supply can be given to the victim by using the oxygen apparatus attached to the clamp. |

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## #3 Utility (Features and Functionalities)

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| * The victim can sustain alive without lifting them due to supply of oxygen along with the clamp body. So that extra time is gained. * The camera is mounted on clamp body and used to see the victim’s current situation. * The clamp like gripper lifts the victim with proper grip and without crushing them. |

## #4 Technology Selection/Application

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| * The Infrared Image Sensor is used to monitor the victim’s position and movement. The position of the rescue clamp depends on the position of the victim. * The Air Quality Sensor is used to sense the air quality (amount of oxygen) in the borewell. The oxygen will be supplied based on the data acquired from air quality sensor. * The servo motor is which controls the gripper used to hold and release the victim. The step angle and torque of the motor depends on the orientation and mass of the victim * The microcontroller is used to control actuators and acquire data from the sensor simultaneously. The microcontroller is being programmed according to the operation. |

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