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## **Innovation Proposal**

Rescue sector| Automated Borewell Rescue System

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**BONAFIDE CERTIFICATE**

Kumaraguru College of Technology, Coimbatore-641049

(Autonomous)

Affiliated to Anna University, Chennai

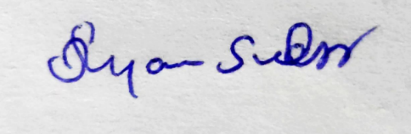
This is to certify that the project report, entitled **“****Automated Borewell Rescue System”** is a bonafide work of **Janaa S,** submitted in partial fulfilment of the requirements for the **Engineering /Innovation/ Design/ Ideation Sprint of Innovation practicum**,( Engineering Clinic -Project Based Learning Framework) Cohort I/II done during the EVEN Semester (March 17th 2022 to July 27th 2022) of IInd year B.E. Degree Programme offered by Kumaraguru College of Technology (Autonomous), Coimbatore- 641049 - Affiliated to Anna University, Chennai.

**FACULTY MENTOR(S)**

**DECLARATION**

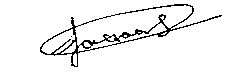
We, **Janaa S, Sudharsan M, Shyam Sundar J, Yogesh T, Sedhuram S, Pradeepan S,** hereby declare that the project report, entitled **“Automated Borewell Rescue System”,** submitted to Kumaraguru College of Technology in partial fulfilment of the requirements for the Engineering / Innovation / Design / Ideation Sprint of Innovation practicum,( Engineering Clinic -Project Based Learning Framework) Cohort I/II done during the EVEN Semester (March 17th 2022 to July 27th 2022) of IInd year B.E./B.Tech Degree Programme offered by Kumaraguru College of Technology (Autonomous), Coimbatore- 641049 - Affiliated to Anna University, Chennai.

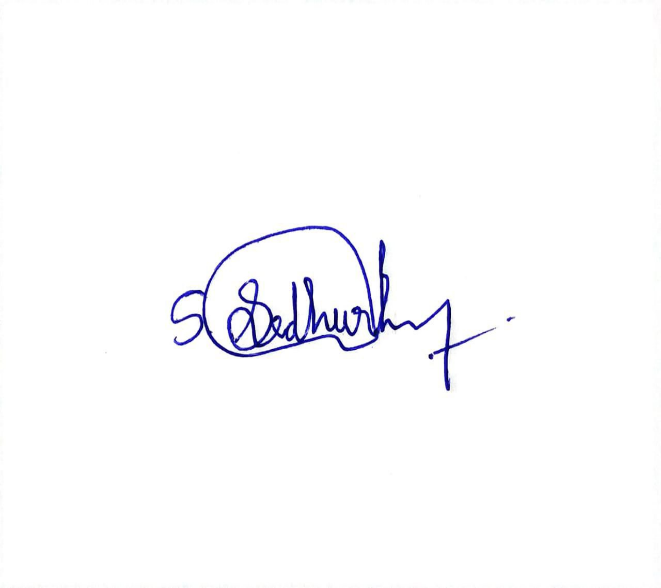
**Signature of the Candidates**

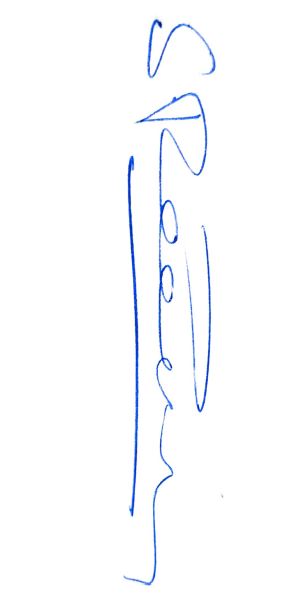












**Innovation Brief**

**Abstract**

The traditional way to rescue the child is to dig a parallel pit adjacent to the bore well. This method is difficult, lengthy and risky to rescue the trapped child. In the proposed method mechanical system moves inside the borewell channel and moves its gripper arm in accordance with the user commands Given. 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. This solution consists of a clamp like apparatus which is attached with a camera and an air quality monitoring system.

#1 Problem Statement & Significance

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| **Automated system for rescuing children from borewell accidents**  **The significance of solving this problem and the quality of the outcome are:-**  1.By solving this problem many children lives can be saved when they fall accidentally.  2. The mortality rate of children falling into the borewell can be reduced.  3.This method also does not hurt while the child is being rescued.  There is no need to dig a big pit parallel to the borewell up to the depth where the child is struck. |

## #2 Target User and Use-Case(s)

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| * Target user – Fire Department and Government. * Use case – Using this system the probability of rescuing the child alive from the borewell can be maximized and the injuries can be minimized. The expense for rescuing the child is comparatively low than the preceding methods which are available now. |

## #3 Expected outcomes or gains

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| * By solving this problem many children life can be saved when they fall accidentally. Deathrate of children can be reduced. * The expense for rescuing the child is comparatively low than the preceding methods which are available now. * In INDIA mostly the children are taken from the borewell without soul. Many children under the age 4 & 5 are losing their lives. So, this problem is of highest priority than others. |

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

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| * Manipulator, is a system designed to save children from borewell accidents without any casualties and at low cost. The main goal of the system is to save the life of a child. * While the technique reaches below the child it gets locked by the system automatically at the current position and motor power is not required to raise it. The mechanism makes the system self-balanced. |

## #5 Utility (Features and Functionalities)

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| * The proposed system operation works better and can perform different works which will make the arm more secure and easier in operation. * Since there is no need for a parallel hole for rescue purposes and the child is rescued through the existing hole itself. |

## #6 Usability & Deployment Constraints

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| * Even though there are so many methods existing, still there is a need of more simple and sophisticated rescue equipment. Here we are proposing a system called manipulator-based child rescue system from bore well. * Time consumption is less comparing to old techniques. It also provides oxygen supply according to the victim’s condition. |

## #7 Technology Selection/Application

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| * The manipulator parts are to be assembled in the correct way. Later fix the system with all necessary components and connect it to the rope, which runs inside a narrow hole through pulleys. * The entire set up is supported by a tripod stand on the ground with an oxygen concentrator aside. Send the system slowly inside the borehole through controls by watching the virtual images in PC or Mobile. * After detecting the human body, the system will stop just above the child and give the information of depth from the ground, the position of the child. |

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**ANNEXURE**

* *Give the final version of Forge Innovation Toolkit canvas*

**#1 Problem Validation & User Discovery Canvas**

**#2 MUP Challenge Brief Canvas**

**#3 Value Proposition Canvas**

**#4 VPC Activity Guide**

**#5 VP Statement Guide**

**#6 MUP Concepts Generation Canvas**

**#7 MUP Concept Assessment Canvas**

**#8 MUP Tech Canvas**