SRI VENKATESWARA COLLEGE OF ENGINEERING

IDEA SUBMISSION - SIH 2023 INTERNAL HACKATHON

PROBLEM STATEMENT NUMBER	**1422**
PROBLEM STATEMENT TITLE	**Devise the method for identification of victims buried under avalanches**

ABSTRACT

(Max. 300 words)

Avalanches are highly perilous and unpredictable events. Swift action is crucial if someone is buried, and survival chances drop below 30% after an hour of an avalanche. Existing detection methods are difficult to use in harsh conditions, making AI/ML solutions vital for rescue operations due to which Drones/UAVs are used for terrain surveillance, specifically the DJI Matrice 300 RTK drone, known for its resilience in extreme climates. The drone is equipped with a Thermal Camera, Beacon Transceiver, and Metal Detector. The Thermal Camera detects humans through heat, while the Beacon Transceiver and Metal Detector expedite searches by identifying safety gear, staying within the critical 60-minute window. A user-friendly Dashboard serves as an information hub. The Victim Spotting Process begins with the drone stabilizing at a higher altitude for a clear view of the Avalanche Terrain. It then descends to inspect initial debris spots. The Thermal Camera classifies debris types (Animal, Human, Wood Log/Bark), with each classification and timestamp logged simultaneously on the Dashboard. Human Positive logs on the dashboard are highlighted with a voice note, providing Latitude, Longitude, and nearby debris landmarks, expediting rescue efforts. The proposed solution offers greater certainty and significantly reduces search times as well as mortality rates while identifying avalanche victims buried underneath the snowbed.

[250 words]