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Smart Ambulance Response System

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ABSTRACT

The golden hour is a critical period for saving lives during medical emergencies, yet it is often lost due to delays in transit and inefficient documentation at hospital emergency departments. These delays significantly reduce patient survival chances, as treatment often begins later than optimal. This paper proposes an advanced solution to bridge the communication gap between ambulances and hospital staff, optimizing the golden hour by integrating cutting-edge technologies. The proposed system upgrades ambulances with ICU-like capabilities and predictive analytics using machine learning. Equipped with a cardiac monitor to continuously track vital parameters and an HMI (Human Machine Interface) to enter patient's information and initial conditions via touch or voice input, the system transmits real-time data to hospital Emergency Departments. This ensures that medical teams are well prepared before the patient's arrival. Additionally, machine-learning al- gorithms analyze the obtained data and vitals in real time, predicting potential diseases and injuries. By leveraging real- time data sharing and predictive analytics, the system enhances emergency response efficiency, significantly improving patient outcomes.

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