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| **PROJECT TITLE: Smart Traffic Management System For Ambulance** | | | |
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| **ABSTRACT** | | | |
| Ambulance service plays a very important role in saving human life during emergency conditions. An increased volume of vehicles not only increases the chances for them being involved in accidents but about 30% of deaths are caused due to delayed ambulance daily. Another data shows that more than 50% of heart attack cases reach hospital late. Since these days roads are extremely congested with heavy traffic even with a siren, cars are unable to move and give way to the emergency vehicle. By implementing this system it gives someone a higher probability for a person to live and give them a fighting chance. This system will be implemented in a smart city.  The first system is using a RFID, smart semaphores whereas the second system is having the application of stroboscopic effect along with stroboscope lights and sensors. The combination of these two systems would easily control the traffic and will help emergency vehicles to reach their destinations on time.  **AIM:** To detect ambulance struck in a traffic, release traffic in front of it and alert the next signal to release traffic so that ambulance can move freely and reach its respective hospital.  **OBJECTIVES:**  1. To collect and store the datasets.  2. To provide the live stream of the video as the input to the program.  3. To crop or extract images of each and every ambulance from each frame extracted.  4. Enable easy movement of ambulance in traffic to help get medical care at the earliest.  5. To release the signal after the ambulance is detected from the extracted frame.  **METHODOLOGIES:**  **Methodology of objective-1:** The data set used are images of ambulance, ambulance word, red and blue light present on the ambulance.  **Methodology of objective-2:** The input should be a live stream video containing the images of  ambulance to be analyzed.  **Methodology of objective-3:** For frame extraction a separate set of commands are defined using OpenCV library which allows the system to extract out frames from the real time video.  **Methodology for Objective-4:** The Raspberry Pi camera collects data of the real-time density of vehicles present on the road and detects the ambulance.  **Methodology for Objective-5:** This information is fed to the Raspberry Pi microcontroller which determines the change in signal. | | | |
| **System Requirements (H/W and S/W)** | | | |
| **Minimum Hardware Requirements:**   * Components: Raspberry Pi, Sensors. * Processor: Intel Core i5 1.3GHz (Turbo Boost up to 2.6GHz) with 3MB shared L3 cache * 4GB memory * 1 Gbit/s network * 120GB SSD   **Software Requirements:**   * OS: Linux, Windows 10 * Preferred browser: Google Chrome * Image/Video Processing: OpenCV using Python * Machine Learning: TensorFlow   **EXPECTED OUTCOME:**  After the datasets are trained in the program, the live stream is given as the input. Based on the input, the ambulances images which needs to be analyzed are cropped or extracted and the signal gets released leading to smooth movement of the ambulance.  **REFERENCES:**  [1] V. Bhardwaj, Y. Rasamsetti and V. Valsan, "Image Processing Based Smart Traffic Control System for Smart City," 2021 12th International Conference on Computing Communication and Networking Technologies (ICCCNT),2021,pp. 1-6, doi: 10.1109/ICCCNT51525.2021.9579787.  [2]M. Lingani , “Smart Traffic Management System using Deep Learning for Smart city applications “ ,Volume 8, Issue 03 (March 2021)  [3] S. Javaid, A. Sufian, S. Pervaiz and M. Tanveer, "Smart traffic management system using Internet of Things," 2018 20th International Conference on Advanced Communication Technology (ICACT), 2018, pp. 393-398, doi: 10.23919/ICACT.2018.8323770.  [4] V. Srinivasan, Y. Priyadharshini Rajesh, S. Yuvaraj, and M. Manigandan, “Smart traffic control with ambulance detection,” IOP Conf. Ser. Mater. Sci. Eng., vol. 402, no. 1, 2021  [5] Rachana K P, Aravind R, Ranjitha M, Spoorthi Jwanita, Soumya K, 2021, IOT Based Smart Traffic Management System, INTERNATIONAL JOURNAL OF ENGINEERING RESEARCH & TECHNOLOGY (IJERT) NCCDS – 2021 (Volume 09 – Issue 12), | | | |

**Signature of the Guide**