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| **Project Title**: X-Ray Analysis of Palm and Fingers for Fracture Detection | | | | |
| **Project Start Date** *:* 10 - 02 - 24 | | **Project End Date** : 27- 04 -24 | | **No.of Months** : 04 |
| **Sl.No** | **VTU No** | **Name of the Student** | **Branch** | **Year of study** |
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| **Abstract in 100 Words:**   * This study proposes a novel approach for fracture detection through X-ray analysis of palms and fingers. By utilizing advanced image processing techniques, fractures can be accurately identified and analyzed, aiding in timely medical intervention. The method capitalizes on the unique anatomical features of the hand, enhancing the accuracy of fracture detection compared to traditional methods. The proposed technique shows promising results in initial trials, demonstrating its potential to revolutionize fracture diagnosis in hand injuries. Implementation of this approach could significantly improve patient outcomes by facilitating early detection and appropriate treatment of fractures in the palm and fingers**.** | | | | |
| **Block Diagram:**  **Project Outcome/ Result:**  In developing a bone fracture detection system, the project's outcome and results encapsulate several key achievements. Firstly, the system demonstrates remarkable accuracy in identifying fractures within X-ray images. Through the implementation of advanced algorithms and machine learning techniques, the system reliably detects even subtle fractures, ensuring a high level of diagnostic precision. This accuracy significantly enhances the diagnostic capabilities of healthcare professionals, aiding in timely and accurate treatment decisions.  Moreover, the project yields an outcome of efficient processing, enabling swift analysis of X-ray images. By optimizing computational algorithms and leveraging parallel processing techniques, the system efficiently analyzes images, reducing the time required for diagnosis. This efficiency is instrumental in expediting patient care, particularly in emergency situations where rapid diagnosis is critical for initiating appropriate treatment.  Additionally, the project emphasizes the development of a user-friendly interface, enhancing accessibility and usability for healthcare practitioners. The intuitive interface facilitates seamless interaction with the system, allowing users to easily upload X-ray images, interpret results, and access relevant patient information. Incorporating user feedback and ergonomic design principles, the interface promotes user satisfaction and confidence in utilizing the fracture detection system as an indispensable diagnostic tool. | | | | |
| **Conclusion:**  In conclusion, our study presents a promising avenue for fracture detection through X-ray analysis of palms and fingers. Leveraging advanced image processing techniques, we have demonstrated the feasibility of accurate fracture identification, offering a potential breakthrough in medical diagnosis and treatment. The unique anatomical characteristics of the hand provide a reliable basis for this approach, enhancing diagnostic precision compared to conventional methods. Our findings underscore the importance of early detection and intervention in hand injuries, with the potential to significantly improve patient outcomes. Future research should focus on refining and validating this technique in clinical settings, paving the way for its integration into routine medical practice. | | | | |