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SCHOOL OF
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Department of Computer Science & Technology

CERTIFICATE

This is to certify that the work titled **“Innovation in Medicine: ML model to detect fracture in bone”** is carried out by **D Gnana Prasoon (ENG22CT0028), Yamuna V (ENG22CT0052), Pushyami B (ENG22CT0045), Zeenathunnisa (ENG22CT0023), Vishishta H E (ENG22CT0022)** Bonafide students of Bachelor of Technology in Computer Science and Technology at the School of Engineering, Dayananda Sagar University, Bangalore in partial fulfillment for the award of degree in Bachelor of Technology in Computer Science and Technology, during the year **2024-2025**.

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DECLARATION

We, **D Gnana Prasoon** (ENG22CT0028), **Yamuna V** (ENG22CT0052), **Pushyami**(ENG22CT0045), **Zeenathunnisa** (ENG22CT0023), **Vishishta H E** (ENG22CT0022), are students of the fifth semester B.Tech in Computer Science and Technology, at School of Engineering, Dayananda Sagar University, hereby declare that the mini project titled “**Innovations in Medicine: ML model to detect fracture in**” has been carried out by us and submitted in partial fulfillment for the award of degree in Bachelor of Technology in Computer Science and Technology during the academic year 2023-2024.

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ABSTRACT

Many times, it is difficult and time consuming to find out the location of fracture in the patient who is suffering from pain. Today medical imaging technique played the significant role in research and diagnosis field. X-ray imaging technique is used to diagnose and also used to represent anatomical structures such as bones, in human beings. X-ray imaging technique which is further used to detect bone fractures and then the obtained image is processed by different image processing methods such as Computer Aided Diagnosis, Edge Detection, segmentation which are beneficial for technicians.

To help doctors and hospitals better care for their patients, a lot of innovative technical resources have been developed, because the typical scanner for X-ray produces a fuzzy picture of the bone component in issue, surgeons risk making an inaccurate diagnosis of bone fracture when they utilize it. Various stages such as pre-processing, edge detection, feature extraction and machine learning classifications, constitute the backbone of this system.

several machine learning algorithms, such as Naïve Bayes, Decision Tree, Nearest Neighbors, Random Forest, and SVM, have been used specifically for handling bone fracture detection on a dataset with 270 x-ray images. Accuracy measures for the various algorithms employed in the study range from 0.64 to 0.92,

Keywords: Medical Imaging, X-ray imaging, Bone fractures, Diagnosis, Image Processing, Computer -Aided Diagnosis (CAD), Edge Detection, Segmentation, Anatomical structures, Medical Technicians.

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LIST OF ABBREVIATIONS

AI - Artificial Intelligence

CNN- Convolutional Neural Network

CT – Computed Tomography

DICOM – Digital Imaging and Communications in Medicine

ML – Machine Learning

YOLO – You Only Look Once

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