



RNS INSTITUTE OF TECHNOLOGY
(AICTE Approved, VTU Affiliated and NAAC 'A+' Accredited)
(UG programs - ECE, CSE, ISE, EIE and EEE have been accredited by NBA for the
Academic years 2022-2025)
Channasandra, Dr. Vishnuvardhan Road, Bengaluru - 560 098

Department of Electronics & Communication Engg.
PROJECT ON

**A Biomechanical Device for Acquisition and Assessment
of Plantar Pressure**

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Under the Guidance of

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Chronic pain in the knees, ankles, muscles, and joints, falls as a result of imbalance, and are common among senior people today. Foot assessment is used in clinical practice to classify foot type and factors identifying underlying conditions causing imbalance in elderly people. A device is required to identify postural imbalance and chronic condition. The position of the foot and its structural alignment is used to infer the foot function and investigates mechanism leading to imbalance. The developed device helps in quantitatively measuring pressure points in different regions of the foot using FSR sensors. The device consists of an array of FSR sensors to detect the pressure at different regions of the foot. It consists of an arduino board to collect the sensor data and is used to represent the amount of pressure applied by different regions of each foot. The output of the FSR sensor is obtained in terms of resistance which is converted into N/cm square using a mapping function with a calibration factor of 0.22lb for 1N. The classification is achieved by training the model with the help of machine learning algorithms such as Rule Based Data Mining Classifier. The foot pressure values obtained via this approach assist doctors and physiotherapists in the development of posture correction exercises to aid in the improvement of the condition of imbalanced feet.

Awards :

- 1. 2022 AIC DSC Second Place 20,000/-**
- 2. 2023 Received Padmashri Dr. S K Shivkumar Innovative Project Award in under graduate level by Karnataka Science and Technology Academy (KSTA) with a cash award of 10,000/-**
- 3. 2023 Sanctioned an amount of Rs. 5000/- from KSCST and the project was selected for state level Exhibition by Karnataka State Council for Science and Technology, 2023.**