**VISVESVARAYA TECHNOLOGICAL UNIVERSITY BELAGAVI**

***Project Report on***

**“Pressure Ulcer Prediction and Prevention”**

*Submitted in the partial fulfillment for the requirements of the degree of*

BACHELOR OF ENGINEERING IN

COMPUTER SCIENCE AND ENGINEERING

*Submitted By*

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Under the guidance of

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

BMS INSTITUTE OF TECHNOLOGY & MANAGEMENT

YELAHANKA, BENGALURU - 560064.

2021-2022

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**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**





**CERTIFICATE**

This is to certify that the Project work entitled **“Pressure Ulcer Prediction and Prevention”** is a bonafide work carried out by **A Nitya Dyuthi (1BY18CS001), Khushwinder Singh (1BY18CS074), Likith S (1BY18CS081), Prakhyat (1BY18CS108),** in partial fulfillment for the award of **Bachelor of Engineering Degree in Computer Science and Engineering** of the **Visvesvaraya Technological University, Belagavi** during the year 2021-2022. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in this report. The project report has been approved as it satisfies the academic requirements in respect of project work for B.E Degree.



**Signature of the Guide Signature of the HOD Signature of Principal**

Mrs. Durga Bhavani A Dr. Thippeswamy G Dr. Mohan Babu G N Assistant Professor Professor & HOD, Principal, BMSIT&M

Dept. of CSE, BMSIT&M Dept. of CSE, BMSIT&M

**External VIVA-VOCE**

Name of the Examiners Signature with Date

**1.**

**2.**

**ACKNOWLEDGEMENT**

We are happy to present this project after completing it successfully. This project would not have been possible without the guidance, assistance, and suggestions of many individuals. We would like to express our deep sense of gratitude and indebtedness to each and everyone who has helped us make this project a success.

We heartily thank our Principal**, Dr. MOHAN BABU G N, BMS Institute of Technology & Management,** for his constant encouragement and inspiration in taking up this project.

We heartily thank our **Head of the Department, Dr. Thippeswamy G, Department of Computer Science and Engineering, BMS Institute of Technology &Management,** for his constant encouragement and inspiration in taking up this project.

We gratefully thank our Project Guide, name **of Mrs. Durga Bhavani A, Assistant Professor, Department of Computer Science and Engineering,** for his/her guidance, support, and advice.

Special thanks to all the staff members of the Computer Science Department for their help and kind co-operation.

Lastly, we thank our parents and friends for the support and encouragement given to us in completing this precious work successfully.

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DECLARATION

We, **A Nitya Dyuthi, Khushwinder Singh, Likith S, and Prakhyat**, students of Eight-semester B.E, in the Department of Computer Science and Engineering, BMS Institute of Technology and Management, Bengaluru declare that the project work entitled “**Pressure Ulcer Prediction and Prevention**” has been carried out by us and submitted in partial fulfillment of the course requirements for the award of degree in Bachelor of Engineering in Computer Science and Engineering of Visvesvaraya Technological University, Belagavi during the academic year 2021-2022. The matter embodied in this report has not been submitted to any other university or institution for the award of any other degree or diploma.

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**ABSTRACT**

Pressure ulcers (PU) or Decubitus ulcers (DU) are localized injuries to the skin or underlying tissue, usually over a bony prominence, resulting from unrelieved pressure. They are deep scars that can reach up to the bones and are extremely painful. They affect people that do not have much ambulation and are bound to a bed all day long. The proposed system includes predictive and preventive methods to solve the issue of bedsores. The predictive solution involves measuring pressure and moisture levels and taking corrective measures to prevent painful bedsores. The preventive measure is to use a mattress to aid in redistributing pressure from a concentrated area. The mattress consists of a set of air pockets. The pressure in the air pockets surrounding the pressurized area is changed so that the pressure on said area of the body is reduced, thereby preventing bedsores.

Older people, whether staying at home, in hospitals, or in retirement homes, incur the risk of health symptoms and problems. Due to the advent of COVID-19, the number of cases where the patient is prescribed bed rest is soaring. Due to bony prominence, the common sites for DU include heels, shoulder blades, elbow, and coccyx/sacrum (gluteal). They are a common injury that mainly plagues elders and frail people, and is a major cause of concern in medical institutions. Current screening and prevention techniques for assessing risk for decubitus ulcer formation and repositioning patients every 1-3 hours are labor-intensive and can be subjective.

We have proposed a system using low-cost, disposable wireless, and unobtrusive fabric-based pressure sensors and hygrometer (to measure moisture levels on the skin) to continuously monitor the tissue status in at-risk areas already developed to detect the pressure and make the necessary adjustments to the bed to prevent the same.

