|  |  |  |  |
| --- | --- | --- | --- |
| **Title:** | Development of a low-cost textile sensor based insole to monitor | | |
| **Author(s) Name:** | Nuzat Nuary Alam,Rethwan Faiz, Mohammad Hasan Imam | | |
| **Contact Email(s):** | nuzatalam@aiub.edu | | |
| **Published Journal Name:** | Journal of Medical Engineering & Technology | | |
| **Type of Publication:** | Journal | | |
| **Volume:** | 46 | Issue | 4 |
| **Publisher:** | Taylor and Francis | | |
| **Publication Date:** | 25 February 2022 | | |
| **ISSN:** | 1464-522X(online) 0309-1902(Print) | | |
| **DOI:** | https://doi.org/10.1080/03091902.2022.2041748 | | |
| **URL:** | https://www.tandfonline.com/doi/full/10.1080/03091902.2022.2041748 | | |
| **Other Related Info.:** |  | | |
|  | | | |

|  |  |
| --- | --- |
| **Abstract:** |  |
| A common but preventable complication of diabetes is diabetic foot ulcer. If appropriate care is not provided such foot lesions progress to the most severe diabetic foot complication, like infection, gangrene, amputation and even death. Diabetic neuropathy results abnormal planter pressure points under the foot and triggers the tendency of foot ulcer. The aim of this paper is to present the development of a low cost, power efficient, soft, lightweight and simple in-shoe planter pressure measurement system. The system is capable to determine the average static pressure under ball and heel of the foot. The insole is comfortable due to the use of textile pressure sensor and its simple data acquisition method makes operation easy for the users. An experiment with 10 participants with and without diabetes was carried out to observe the outcome of the system. The practical implication of this study is to minimise the damage caused by foot ulcer by determining the pressure abnormality at earliest with a fully developed cost effective design. The system is capable to identify the difference in average planter pressure values in different groups of participants. To monitor the foot health proactively, the proposed system is found to be a useful device and can successfully scan the planter pressure under ball and heel of the foot. | |