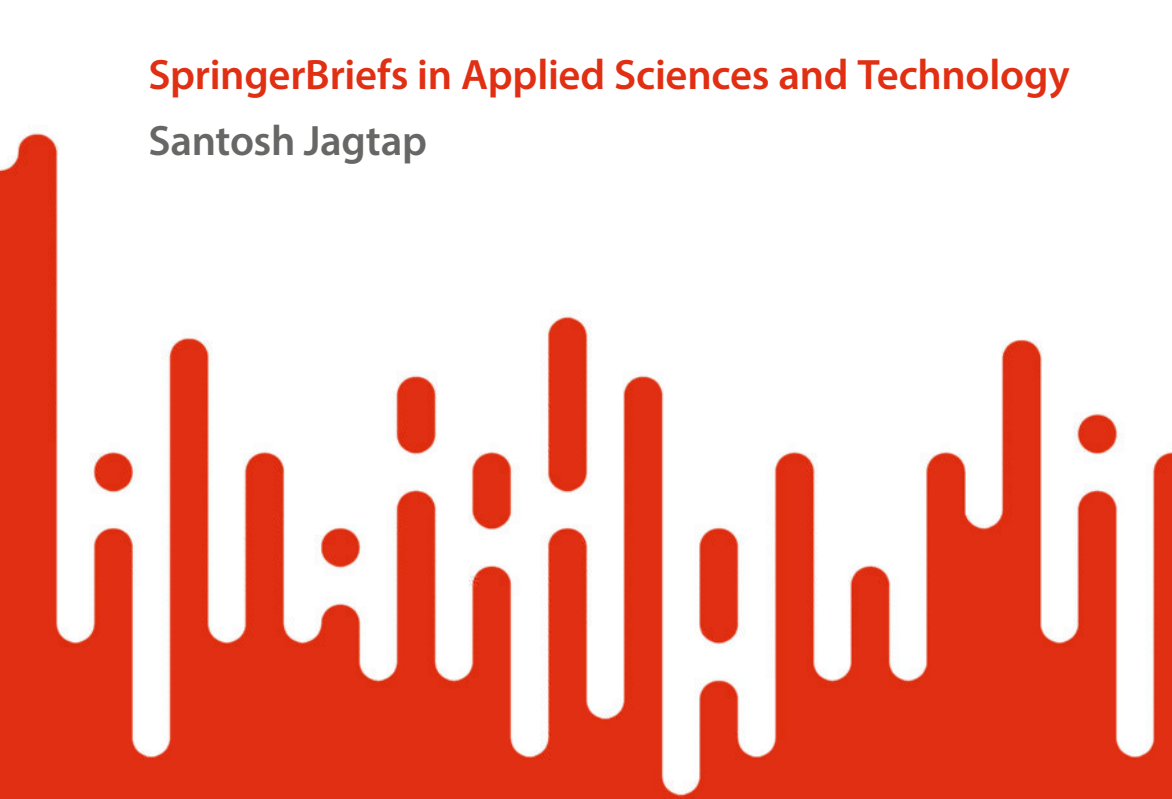


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Santosh Jagtap



Design and Engineering for Low Resource Settings

A Practical Guide

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A Practical Guide

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Preface

In the pursuit of development and progress, it is important to ensure that no one is left behind. Specifically, in resource-constrained settings, where challenges are abundant and conventional solutions may not be suitable, innovative approaches are needed. This book explores such approaches, focusing on a practical and integrated methodology for designing, developing, and implementing solutions for the betterment of people living in low resource settings.

Chapter 1 presents the background by examining various design and engineering approaches such as appropriate technology, humanitarian engineering, design for development, base of the pyramid, frugal innovation, and social innovation. It emphasizes the necessity of holistic solutions for addressing infrastructure weaknesses, limited resources, and low literacy levels and proposes a comprehensive and integrated methodology to guide the process of designing, developing, and implementing solutions aimed at the betterment of resource-constrained societies.

Chapter 2 highlights the critical role of local context in designing integrated solutions for low resource settings and presents guidelines for understanding, adapting to, and building on local conditions and circumstances. By providing illustrative examples, it demonstrates how a deep understanding of the socio-cultural context and adaptation of solutions can lead to more impactful solutions.

Chapter 3 examines the role and necessity of codesign with individuals living in resource-constrained societies and highlights its advantages for the design process as well as for human and social development of these societies. The chapter offers guidelines for effective codesign practices. These guidelines can support inclusive and impactful cocreation with underserved communities.

Taking into account the multifaceted needs of resource-constrained communities, Chap. 4 offers guidelines for designing training, awareness, and income generation programmes. By tailoring solutions to local contexts and circumstances, sustainable and appropriate solutions can be developed to support development of communities.

The final chapter (Chap. 5) examines the critical role of considering the entire lifecycle of solutions and fostering collaboration across sectors in the process of

designing and implementing solutions. By providing examples and recommendations, it highlights the significance of context-specific project management and partnership-driven approaches in designing for sustainable and long-lasting impact.

In navigating these chapters, readers will embark on a journey through innovative methodologies and practical insights aimed at empowering communities and advancing social and human development in resource-constrained settings.

Collectively, the book presents insights and best practices, which can inspire action and foster positive change in the lives of those most in need. It is hoped that the ideas and methodologies discussed in the book will contribute to a more equitable and inclusive future for all.

I would like to thank Anuska Sahu for contributing to the creation of some visual illustrations and Akanksha Dixit for some figures used in the book.

Guwahati, India

Santosh Jagtap

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