Breaking Data Barriers: Advancing Web Data Accessibility for the Visually Impaired

In today's era of technology there is a belief in the importance of making data and information available to everyone. However, this accessibility remains a challenge for a group of people; those who are blind or visually impaired. The concept of accessible data representation is the focus of this thesis and its relevance to the unique difficulties faced by this community. It will delve into every aspect of data accessibility from how it's initially communicated to the intricate world of interaction. To start we conduct an examination of the current status of data accessibility. This examination explores the aspects of the issue including how data is used in different settings like homes, public spaces and workplaces. We analyze types of data ranging from time-based data to geographical information uncovering the complexities involved in making these diverse forms of data accessible to people, with visual impairments. Throughout our investigation we emphasize both the strengths that already exist in this field and the key obstacles that hinder accessibility. The principal aim is to deconstruct the complex network of obstacles impeding the full assimilation of visually impaired persons into the digital age. The objective of this study is to uncover obstacles that prevent this community from having seamless access to data by critically evaluating current design techniques. Moreover, it aims to create a road map for developing a more inclusive digital world in which data is not just available but also sensitive to the specific needs of people who are blind or visually impaired. This research strives to tackle two challenges. First, it seeks to shine a light on the intricate obstacles that hinder blind and visually impaired individuals from reaping the full advantages of the digital world. Second, it envisions an inclusive digital space where information is not just accessible but also meticulously crafted to suit the diverse needs of people with blindness or visual impairments. By delving into these issues and working toward ensuring all data-numerical, graphical, or textual- is truly universal and open to everyone, this study aims to spark positive change.