BONOCLE: The next-gen AT Device for the Visually Impaired

Mada Center

As part of the Mada Innovation Program, Mada Center partnered with Seedstars to promote Arabic Assistive Technology solutions with the ultimate goal of supporting accessibility startups in Qatar and the Middle East to enable Person with Functional Limitations (PFLs) and improve their lives. Seedstars and Mada share a common vision to support innovation by working with the distinguished entrepreneurs in the field and offering them funding and subject matter expertise to make their solutions a marketable reality impacting the end users.

The collaboration involved Mada being the ICT Accessibility Partner for the Seedstars MENA 2018 event and awarding the Mada-Seedstars Best Arabic AT Startup competition winner.

The Seedstars MENA's platform combined with Mada Innovation Program reached vast range of innovators and entrepreneurs who were looking for support and resources to make their assistive technology solutions market ready. This collaboration was done through the Competitions stream of the Mada Innovation Program. This stream aims to collaborate with global competitions by incorporating Arabic Accessibility and Assistive Technology category in their existing mainstream competition platform.

The awards attracted 48 applicants from 13 countries in the Middle East and North Africa. Three were selected to be in the final round of the competition to present their solutions in the event. A 10,000 USD prize was awarded to Bonocle, a digital access solution design for the blind and visually impaired.

What is Bonocle?
Current market research suggests that accessibility products targeted towards the visually impaired are unattainable due to their extremely high prices and their lack of compatibility with different file formats.

Bonocle is the first of its kind assistive technology that utilizes one braille cell which refreshes as the device is moved across a surface allowing it to read continuous text. This eliminates the limitations surrounding the presence of limited number of braille cells in such devices and allows pricing the Bonocle at an extremely competitive price point making it affordable to different markets that were not previously available. It also allows Bonocle to be small in size and very portable. The innovative form factor of Bonocle provides the user with utmost portability allowing the visually impaired individual to use his device while on the move or comfortably sitting in a public location.

Moreover, Bonocle utilizes currently existing devices that are well developed, allowing the user access to a much wider range of content and features rather than developing a fully built device that will limit the individuals access to the content currently digitally available. The application programming interface (API) will also allow full integration with the device enabling the user to access all the features of the device being used along with Bonocle. The possibility of the device to integrate with existing platforms allows vast possibilities in terms of extending the product functionalities. The API also supports integration with OCR technology letting the user to read print content.

Bonocle combines hardware and software solutions to provide an innovative product that allows the visually impaired community barrier-free access to a broad array of digital content. It is a handheld/semi wearable device that incorporates a braille cell positioned under the fingertip of the user when held or worn. The product is able to communicate with various electronic devices (e.g. smartphones, tablets, laptops or personal computers) and display the contents of the device in braille on the incorporated braille cell, providing the user with unprecedented access to the digital content available.

Bonocle's Main Features
Bonocle can operate in three different ways:

Firstly, the device can incorporate a capacitive surface at the tip which enables it to hover over a touch screen allowing the device to detect the location of the tip and send the contents of the screen to the braille cell.

Secondly, the contents source device can be automatically chronologically sent to the Bonocle allowing the user to seamlessly read the contents being displayed without exerting any effort.

Finally, the device utilizes a sensor that enables it to be moved on any surface (e.g. workplace desk or restaurant table) while it detects the movement and sends the contents displayed on the user's electronic device by moving his hand on top of the horizontal surface.

The Impact of Bonocle
Bonocle has the potential to integrate the visually impaired and blind community into the society by offering them unhindered digital access to the world. The solution can be integrated seamlessly in tourist attractions, airport, hotels, stadiums and public transportation, to act as a guide and source of information to the visually impaired and blind individuals without blocking any of their senses or limiting their social interaction and thus providing a full immersive experience.

The lower price point, usability, portability and functionalities, positions Bonocle to reach a broader range of the market. Mada innovation program supports the use of Bonocle as it fully supports Arabic allowing the user to access Arabic digital content. This will greatly widen the ecosystem of available Arabic assistive technologies in

Qatar and the region. Ultimately, the product can be a vital contributor towards the Education sector by facilitating the use of braille in classroom and improving braille literacy in the region and worldwide.