Future of Displays

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Displays have been created as a way to convey information. From 2D to 3D, display technology has been evolving to cope with the complexity of the information we try to deliver. But what comes next? Based on current research progress in the field, it is possible to predict that in the next decade we will be reading news from newspaper-like flexible displays with real-time videos (instead of still pictures) and live internet feeds. But if we go even further and predict what displays are going to be like 100 years from now, we can expect that displays will substantially affect the way we live.

The year is 2116, and as his windows turn from opaque to transparent, Mark wakes up feeling the sun in his face. Mark's house already knows that he is awake and the coffee is already brewing. As Mark looks out to an awakening New York, he is presented with the weather forecast as well as a reminder about his dinner with his girlfriend. While taking his shower, Mark likes to read the morning news in the shower-box glass door. In the kitchen Mark is distracted by the football highlights being shown on the table-top display when he gets a call from his mother. It is a hologram call. She is having trouble with the new robot vacuum cleaner she was given for Christmas. Mark then activates the 3D interactions mode, and his 3D image appears in his mother's house where he can show her how to fix her problem. Mark's smartwatch buzzes, telling him that he should leave home if he wants to catch the subway on time. He then transfers the call to his watch and continues to see his mother through his contact lenses. As an architect, Mark has always struggled to visualize and interact with his creations in three dimensions, so he is excited to work on his new interactive desk with a built-in volumetric 3D flexible transparent display. To get a better perspective of what a client's structure is going to look like, Mark uses the virtual reality feature on his contact lenses and walks around the structure fixing the last details. He then invites his boss and clients to his virtual model, where they can look at it together and talk over details using a 3D virtual reality call. The client is happy, and Mark could not be happier. He copies the design documents to his foldable transparent screen. Before folding it, he checks the status of his own house with the display. His house seems a little bit dark. He opens the curtain with the Internet of Things menu of the display and orders his robot cleaner to clean the living room. In addition, since he wants to invite his girlfriend to his home after dinner, he adjusts the temperature of a nice bottle of wine. Now everything is perfect!

Technology development goes faster and faster, and predicting "10 years later" often looks meaningless. However, predicting "100 years later" might be easier because a century is plenty of time to pass through the "trial and error" stage, and we can expect that what we originally imagined as a technology will have come true in real life. The whole idea of displaying information that started from people's imagination will be implemented, and we might hope that all the bugs will be worked out in 100 years. Think of a seamless display technology like perfect, anytime, completely life-like augmented reality, where users see appropriate virtual images overlapped with real scenes at any time and at any place. 100 years is enough to make that possible. The only limitation would be the lack of our imagination rather than an incomplete technology.