EyeR Glasses: Engineering and Development of Modular and Technically Efficient Smart Glasses

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Most smart glasses today are prohibitively expensive and closed source, making them difficult to integrate into custom projects. My vision is to make the beauty of AR more available worldwide. My engineering target was therefore to develop affordable and modular smart glasses, allowing for a fast integration of new features without the need for extensive software knowledge. I've followed a constant iterative procedure in which I tried out different things and adjusted them on the go. This allowed for a very fast development process. I have used a 3D printer to print the custom parts of the glasses casing. The optics I have developed are compact but still capable of displaying a sharp image for each eye, enabling a relaxed viewing experience and 3D rendering of images. For the electronics I have developed several PCBs which are working together in a modular system and, for example, control the displays and use multiple integrated sensors to capture environmental data. I have developed a Python library that controls the smart glasses via USB or wirelessly and allows for easy application development without the requirement for vast software knowledge. The total material cost for my prototype sits currently at ~$138 and it works as expected. I haven't developed my smart glasses for a specific application because the modular system allows for a broad range of use cases. My future target is that these glasses can help to spread the advantages of augmented reality in our society and enable further development in that field.

Awards Won:
Third Award of $1,200