# A–Eye

An AI service for eye disease detection

Context and problem

To prevent vision loss from eye diseases like glaucoma and retinopathy it is important to diagnose them on time. When you discover the diseases too late the vision will be irreversibly damaged. For this reason, diabetic people are screened preventively on diabetic retinopathy, but the costs for this are getting too high. AI is a promising technique for detecting these asymptomatic eye diseases and has the potential to make diagnosing these diseases easier and more affordable. While tests in labs with AI systems often seem promising, the introduction in the medical world often fails. This research was focused on designing a service around the AI system to make it fit the needs of the different medical specialists.

Service

This project was done for the company Ksyos, this is a digital healthcare institute. Ksyos currently provides an ophthalmology service with the use of ophthalmologists and optometrists. The new designed service will also use Opticians. Opticians will do the pre-diagnosis of eye diseases, they do this by taking a fundus picture and run it through an AI system. This will filter out a lot of people who do not need the expertise of an optometrist. In the current ophthalmology service, 90% of the people screened have healthy eyes. When there is a disease developing the AI system will send the patients to an optometrist or an ophthalmologist based on the kind of disease and the severity.
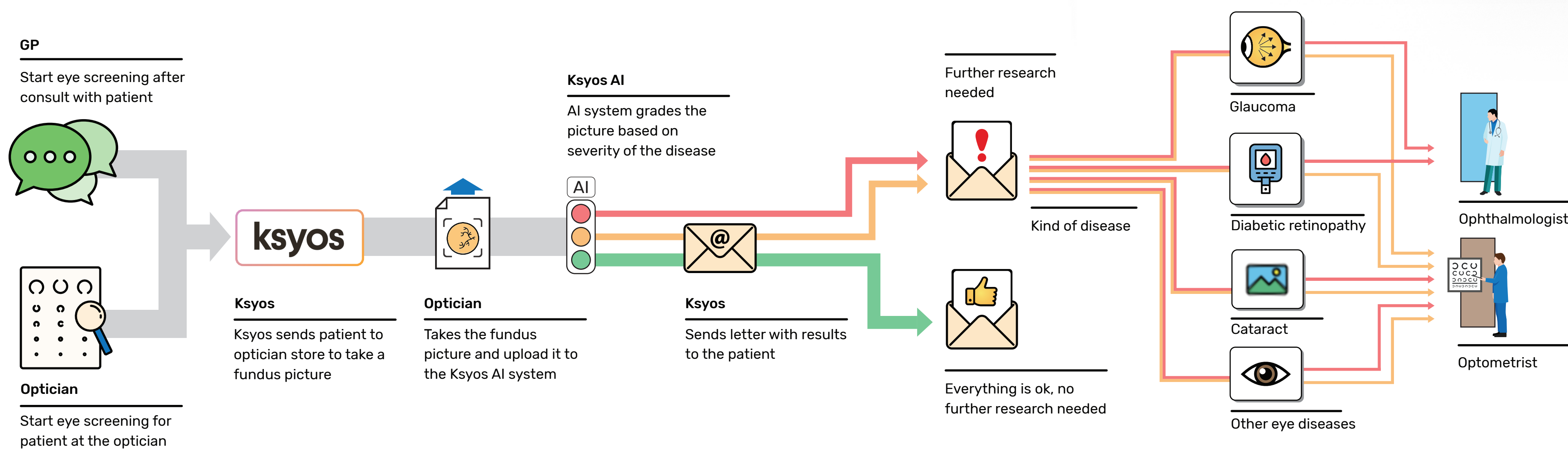
Interaction

The optician does not have the knowledge to explain the detected diseases clearly to the patient, that's why he won't see the results of the screening. His interaction with the AI system will be solely uploading the taken fundus pictures. The results of the AI system will be communicated with the patient by Ksyos. Ksyos will send a letter to the patient's home that explains the next steps they should take. The optometrists need to interact more with the AI system. He needs to understand why the AI system makes certain decisions. It is important for them to know what the AI system has found and where. This way they can interpret the decision of the AI system and decide if they agree with this or not.

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A-eye: Implementation of AI in eye disease detection
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Integrated product design

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