

Redesign of the HeartEye portable ECG for Home use

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Cardiovascular diseases are the leading cause of death worldwide, with coronary artery disease (CAD) accounting for a third of deaths in individuals over 35 in the U.S. Electrocardiography (ECG) has been the key diagnostic tool for over a century. However, existing 12-lead ECG systems are primarily confined to hospitals due to their size and complexity. HeartEye has developed technology to create clinical-grade 12-lead ECGs in a compact form. This project aims to redesign the HeartEye device for home use, enhancing accessibility for patients.



HOW DOES IT WORK?

The ergonomic design of the HeartEye ECG device integrates four dry stainless steel electrodes on the bottom, which the patient places on their chest to capture the heart's electrical signals. The housing of the device is ergonomically optimized for self-measurement, allowing users to comfortably handle it themselves, while also being suitable for caregivers assisting in the process. Once ready, the user presses the button and HeartEye records over 45 seconds, transmitting data via Bluetooth to a smartphone app. The app converts these signals into 12 leads, generating a standard ECG report.



USE SCENARIO

- 1 The patient's journey starts with an intake conversation
- 2 If agreed upon by both the patient and cardiologist, a HeartEye monitoring system is prescribed, and the patient receives a consult on its use, including baseline measurement.
- 3 The user receives their HeartEye device at home, registers it, and links it to their phone.
- 4 Users take weekly ECG measurements, as needed, or during exercise.
- 5 The data is reviewed by a monitoring centre,
- 6 A platform, accessible via the patient's phone, could provide access to ECG data, rehabilitation programs, educational resources, communities, and communication with medical professionals, along with algorithmic insights.
- 7 The usage duration varies, with an estimated duration of 9 months. After which The device can be returned for refurbishment.

