

RE BEAT

Panasonic





“Recognizing the need is the primary condition for design.”

Charles Eames

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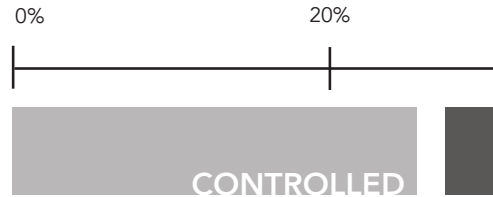
THE SOLUTION

ABSTRACT

Cardiovascular disease (CVD) is the leading cause of death worldwide. Hypertension, abnormally high blood pressure, is a key risk factor for CVD and is often the primary or contributing cause of death. Luckily, early detection and self-care of hypertension has significant benefits in minimizing chronic health conditions. The issue is that disease and health often come with social and emotional stigmas attached. Unfortunately 46% of people diagnosed with hypertension do nothing about it. This provides an ideal point of intervention. What is the optimal way to engage people in the management of their cardiovascular health?

Innovating from a cross-disciplinary perspective has allowed us to develop a meaningful solution for the management and treatment of hypertension. As a team comprised of an industrial designer, a strategic consultant, and creative technologists, we focused our attention on designing an ecosystem comprised of a wearable device, an application, and the establishment of a patient support network in order to create a sense of empowerment and control in relation to cardiovascular health.

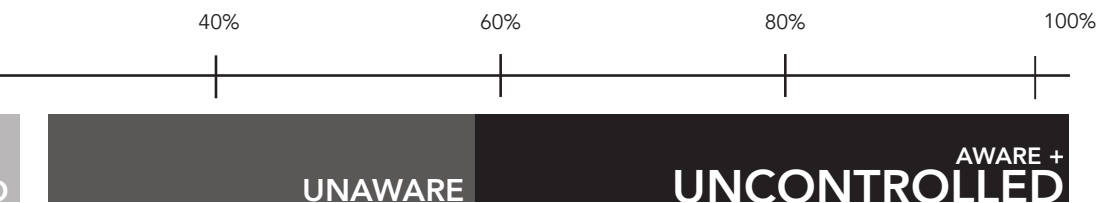
We began our research using broad themes and terminology. After selecting the central topic of cardiovascular health, we took inspiration from ourselves, our families, and our surroundings to discover the different manifestations of cardiovascular health. We wanted to know how lifestyle choices affect an individual's cardiovascular health in the present and the future. We collected many known and considerably unknown connections to activities, settings, and emotions.



75 million
adults live with hypertension

46%
do not manage their condition

RESEARCH



We further refined our research to concentrate on the development of 24-hour blood pressure monitoring to aid in the management and treatment of hypertension.

We found profound statistics that proved many individuals diagnosed with hypertension **do not manage or treat their condition**, therefore placing them at a much higher risk for further complications such as heart attack, stroke, and CVD.

Nearly half, 46% of people in the United States with hypertension do not have their condition under control due to lack of treatment and care. Considering the statistic that nearly 75 million American adults have hypertension and the complications associated with hypertension, including heart disease and stroke which are the leading causes of death nationwide, we concluded that there exists a gap in current treatment plans.



Another strategic space we found in our research on 24-hour BP monitoring, was around the idea of 'white-coat hypertension', high blood pressure appearing only at the doctor's office when medical professionals are present.

RESEARCH

According to the U.S. Preventative Services Task Force, approximately 15 to 30 percent of people have 'white coat hypertension,' which can then lead to the overtreatment of high blood pressure.

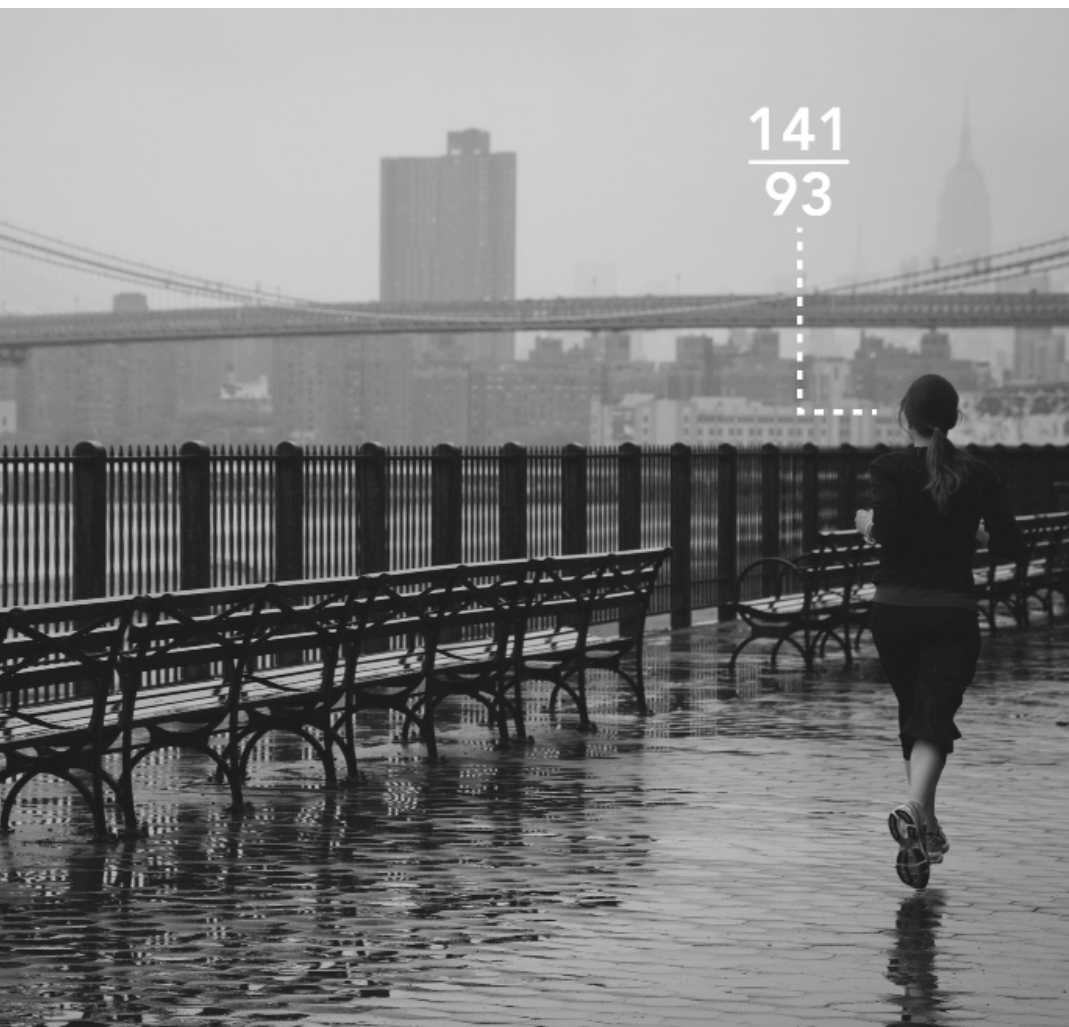
According to the American Heart Association, one way to solve overtreatment is ambulatory monitoring, during which individuals are outfitted with a device that takes continuous blood pressure readings for up to 24 hours in order to keep track of fluctuations over time versus a single measurement. Then, a medical professional is more accurately able to develop treatment plans for individual patients. Other advantages to personal, at-home BP measurement are the ability for physicians to assess responses to antihypertensive medications, regulate patient adherence to treatment, and reduce overall costs.

"white-coat hypertension"

*high blood pressure appearing only
in the presence of medical professionals*

15-30%

of people have 'white-coat hypertension'



OUR QUESTION

“How do we create awareness around the importance of appropriate treatment of hypertension?

What aspects of treatment are currently missing that are preventing patients from actively engaging in the management of their condition?

“How do we demedicalize hypertension and make it part of an individual’s

everyday life?

Our user ranges in age from **35 to 70** years old and lives with hypertension.

They do not actively participate in his or her treatment plan or do not have their condition under control due to lack of beneficial lifestyle adjustments.

Maintaining a certain lifestyle is essential to the treatment and management of hypertension and cardiovascular health as a whole. No matter what medications prescribed by a physician, lifestyle choices including healthy diet, regular exercise, maintaining stress levels, and limiting alcohol, are critical. Our user has not made any such adjustments or does not feel the empowerment or support to start.

Another segment of our user group is on the younger side of the spectrum, who live busy lifestyles, have high levels of stress, and do not have a clear understanding of what their condition means and how to manage it within the contexts of their personal day-to-day.

THE USER



AGE

FEMALE % MALE
diagnosed hypertensive

20 - 34

11.1

6.8

35 - 44

25.1

19.0

45 - 54

37.1

35.2

55 - 64

54.0

53.3

65 - 74

64.0

69.3

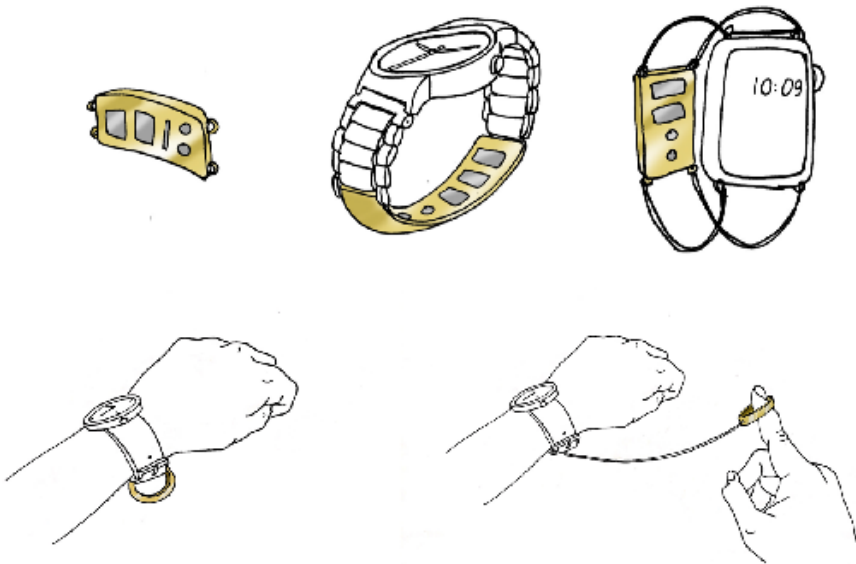
With our user and precedents in mind, our design requirements became:

ADAPTABILITY: create a product that seamlessly integrates into the user's current lifestyle and wardrobe.

EMPOWERMENT: develop a sense of control over hypertension treatment

24-HOUR MONITORING: provide 24-hour, personal monitoring. Allow patients accessibility to their own health, on their own time.

CONNECTED HEALTH: establish a support system that consists of family, friends, and the user's physician



PROCESS

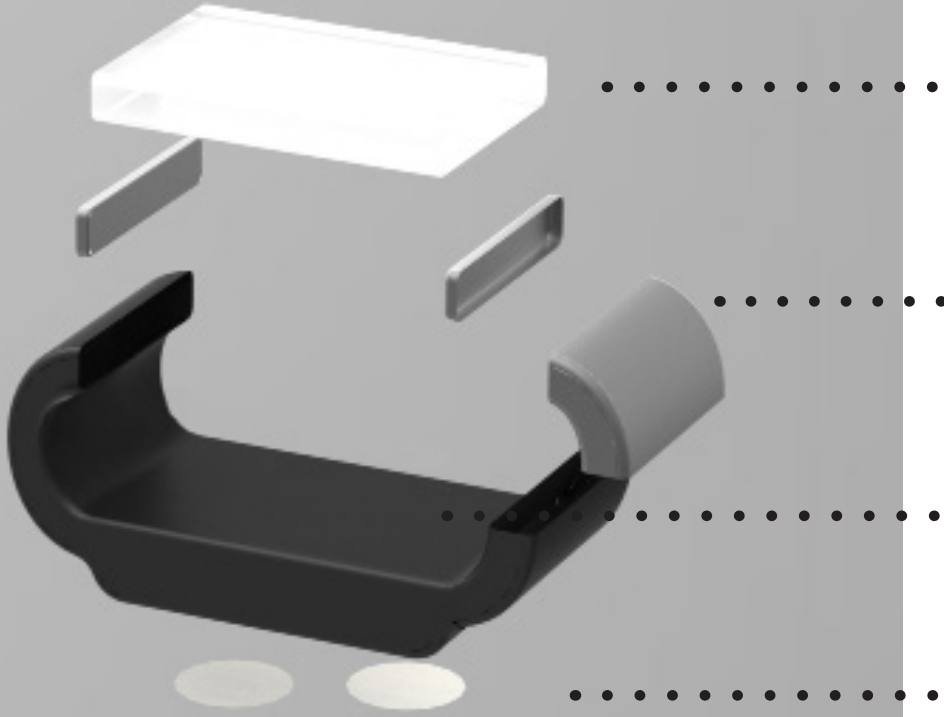
As we began to develop a solution for our user, our ideas and focus shifted throughout. We mapped out many ideations and solutions, but from the beginning we knew that creating an inclusive, 'normalized' ecosystem for our user group was essential.

We designed a system including a wearable device that would generate BP readings, an application that would synthesize the readings and give our users context as to their overall cardiovascular health, connect controllable lifestyle choices to their changing BP measurements over time to create a bigger picture of their hypertension . The preliminary lifestyle variables we found include physical health, weight, smoking, alcohol consumption, and stress. As part of our process we made various adjustments to the information to be included within the application portion of the ecosystem to better situate our final deliverable in the marketplace.

Our user centered ecosystem creates a personal, efficient, and connected method to manage hypertension. The use of a ***modular device, an application,*** and ***a support network*** gives our users an opportunity to take control of their cardiovascular health.

THE SOLUTION





COMPONENTS



SCREEN



HINGE



BATTERY

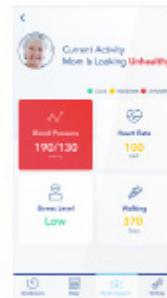
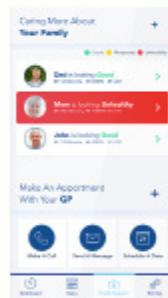
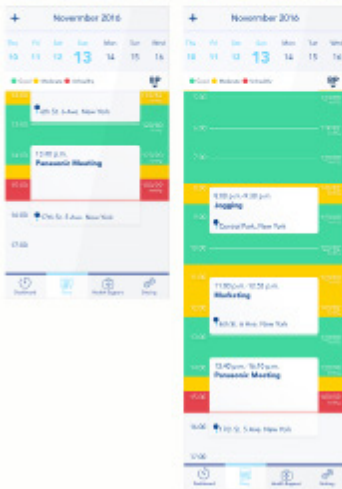


SENSORS

Our modular device is designed to be attachable to any existing watch, allowing our users to integrate the product without having to adopt a new wearable.

Our application is designed as a platform for users to manage their condition in a personal, intuitive space. Users can easily connect to their health, with an option to share their progress with family, friends, and healthcare professionals. By creating a profile that functions along side the modular device, users are able to track and visualize their blood pressure measurements, aligned with the contributing factors of physical activity and stress.

APPLICATION



MARKET COST

\$75-100

with the right technology and management

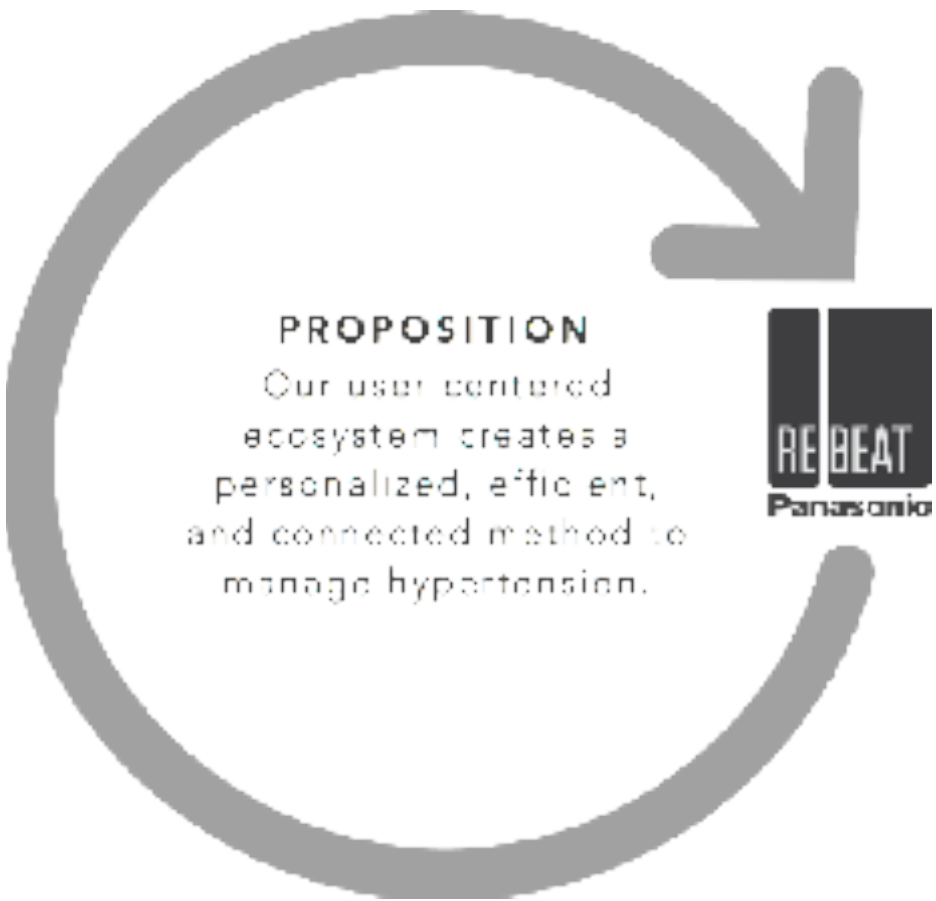
STAKEHOLDERS



ADD-ON REVENUE



OPERATIONS



PROPOSITION

Our user centered ecosystem creates a personalized, efficient, and connected method to manage hypertension.







“Early detection, treatment, and self-care of hypertension has significant benefits in minimizing heart attack, heart failure, stroke, and kidney failure.”

World Health Organization

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Parsons x Panasonic Collaboration

MARY WARREN | JANE MITCHELL | WENNY CHEN | GRETA ZHAO