Heart Assist Device for Patients

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OTHER INFORMATION

CATEGORIZED AS

- » **Medical**
  - » Devices
  - » Disease: Cardiovascular and Circulatory System

RELATED CASES

2019-671-0

BRIEF DESCRIPTION

Researchers at UCI have developed a cardiac assist device for patients with failing heart functions. The device contracts and expands the heart with the help of a pacemaker to help restore natural heart pace and blood flow.

SUGGESTED USES

- Cardiac assist device
- Patients with heart failure

FEATURES/BENEFITS

·Avoids blood contact and eliminates need for blood thinners

·No irreversible changes of heart or heart anatomy

·Device failure does not lead to immediate death

·Internal implanted power sources and wireless charging capabilities minimizes potential driveline infections

TECHNOLOGY DESCRIPTION

Heart failure, the inability of the heart to pump enough blood to the rest of the body, has affected over 5 million people in the United States. Due to the limited availability of heart donors, heart transplants are not a feasible solution for most people.Many of these individuals instead use ventricular assist devices (VADs).However, VADs require invasive surgery that irreversibly alters the anatomy of the heart.VADs are implanted mechanical pumps that are intertwined with the ventricles to help pump blood from the heart to the rest of the body.Since VADs are continually in contact with blood, patients are required to take blood-thinners to prevent blood clots from forming.Additionally, since VADs must be powered by external power sources, a slight mechanical failure could result in the immediate death of a patient.

Inventors at UCI have developed an assist device capable of providing additional pumping to the heart without the limitations of VADs.This device is implantable, but unlike VADs, is external to the heart itself.As a result, the device does not require any modification to the heart or blood vessels.Additionally, the device is power efficient, assisting the heart only as needed and powered by an internal source that can be charged wirelessly over the skin.The device works by using a motor that is synchronized to the pace of the heart with a pacemaker.As a result of these modifications, the risk of death and/or blood clots is greatly diminished.This device provides a unique and effective solution for patients with varying levels of heart failure, including those waiting for heart transplants.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	11,376,417	07/05/2022	2019-671

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