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## A Delivery System for Percutaneous Delivery and Implantation Of Atrioventricular Heart Valves

Tech ID: 29372 / UC Case 2016-759-0

### BRIEF DESCRIPTION

The invention is a novel delivery system providing a minimally invasive solution for the delivery and implantation of atrioventricular heart valves. Through its novel mechanical structure, the invention delivers and positions the valve accurately with no need for painful surgeries or bulky tools.

### FULL DESCRIPTION

Valvular heart disease is the third-most common cause of heart problems in the United States. Artificial heart valves were developed, yet implanting these valves in to the patient proves to be a difficult procedure. Recently, the percutaneous approach for aortic valve implantation was adopted, being minimally invasive, spares the patient for painful and aggressive surgeries. However, such approach still faces challenges, such as the accurate positioning and fixation of the valve, which cannot be easily achieved with the available hardware. Moreover, the bulky size of currently used catheter/prosthetic system further complicates the delivery process and valve positioning.

Inventors at UCI succeeded in developing a novel delivery system that implements the percutaneous approach for valve delivery and implantation, yet with no need for bulky devices. The system includes a simple handle with system controllers embedded therein. This system also includes flexible arms extending from the shafts to carry the heart valve encapsulated in the sheath, simply controlled to constrain or expose the valve when required. Through an innovative structure of extendable shafts, flexible operating arms, and a controllable sheath system, the heart valve can be now be accurately delivered, positioned or even re-positioned with high precision and less pain.

### SUGGESTED USES

- » Interventional Cardiology
- » Delivery and implantation of atrioventricular heart valves

### ADVANTAGES

- Minimally Invasive, spares the patients the need for aggressive surgeries
- Ease of use, with flexible operating mechanism, facilitating the accurate delivery, positioning, repositioning and implantation of the atrioventricular heart valves

### PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,758,347	09/01/2020	2016-759

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### OTHER INFORMATION

#### CATEGORIZED AS

- » **Medical**
  - » Delivery Systems
  - » Devices
  - » Disease: Cardiovascular and Circulatory System
  - » Other
- » **Sensors & Instrumentation**
  - » Medical

#### RELATED CASES

2016-759-0

## STATE OF DEVELOPMENT

A crude working transcatheter mitral valve frame prototype has been developed and tested in a sheep heart. A fully developed prototype is in progress with further testing may be necessary.

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