



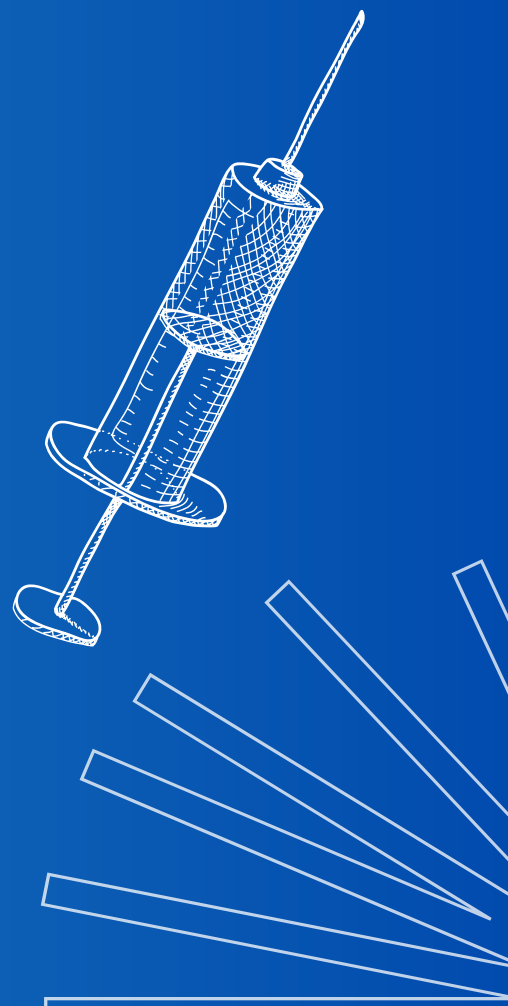
# Life-Saving Devices



**Medical Devices I Biomedical Engineering**

**By: Rohana, Yura, and Carter**

**Guardians of the Bots, Team 97793A**

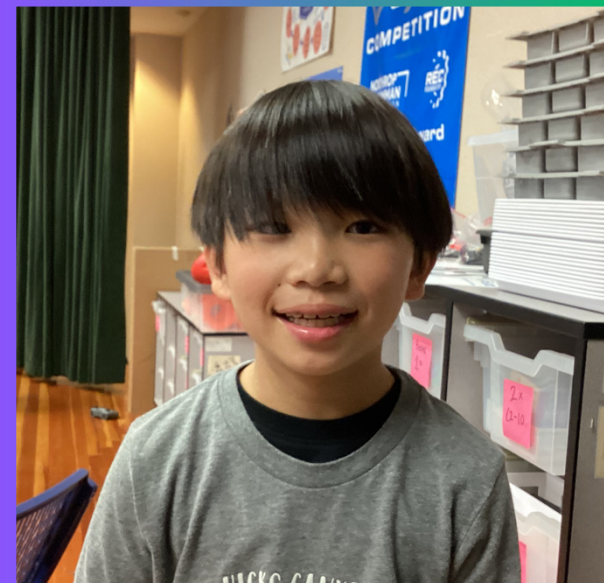


# Meet The Team

ROHANA



COLIN



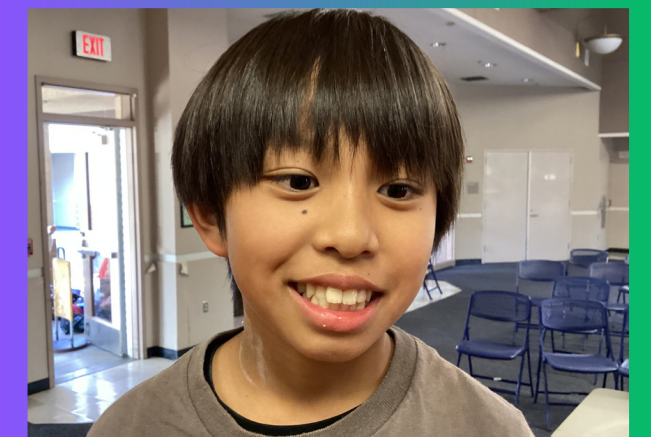
CARTER



YURA



MARKUS

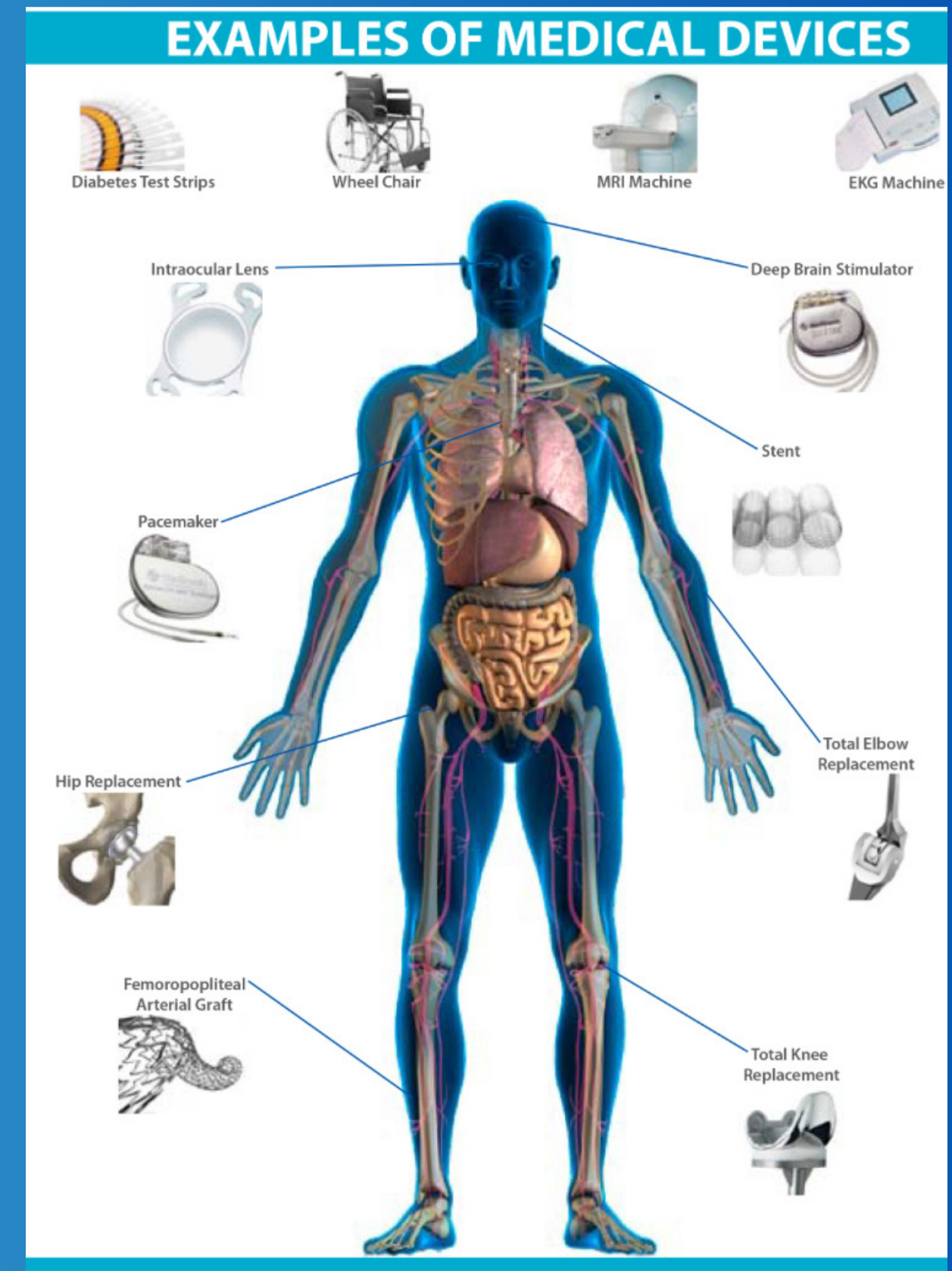




# What is Biomedical Engineering?

Biomedical engineering (BME) is the application of engineering principles to solve biological and medical problems to improve health care.

Biomedical engineers design medical devices, such as artificial internal organs, replacement for body parts, and machines for diagnosing medical problems.



# Why Did We Chose Biomedical Engineering?

Rohana shared her experience about visiting her mother's company on "bring your kids to work day" and how she saw a patient video telling his experience of how the quality of his life had changed after getting implanted with a heart device.

We researched more patient experience videos on YouTube. It was inspiring to learn how a medical device can save a human life.

We interviewed **Swanand D. Sardesai** to learn how the engineering design process is used to design medical devices. Mr. Sardesai is a Senior Director of Product Development at Edward's Life Sciences, the company is a global leader in medical innovations for heart disease. To achieve this role you need to have an engineering degree. He spoke about how fascinating the human body is and still much of it is still a mystery to us. Designing devices that will stay inside the human body and save a life is very challenging and is an engineering feat. This challenge attracted him to work in the medical device industry.

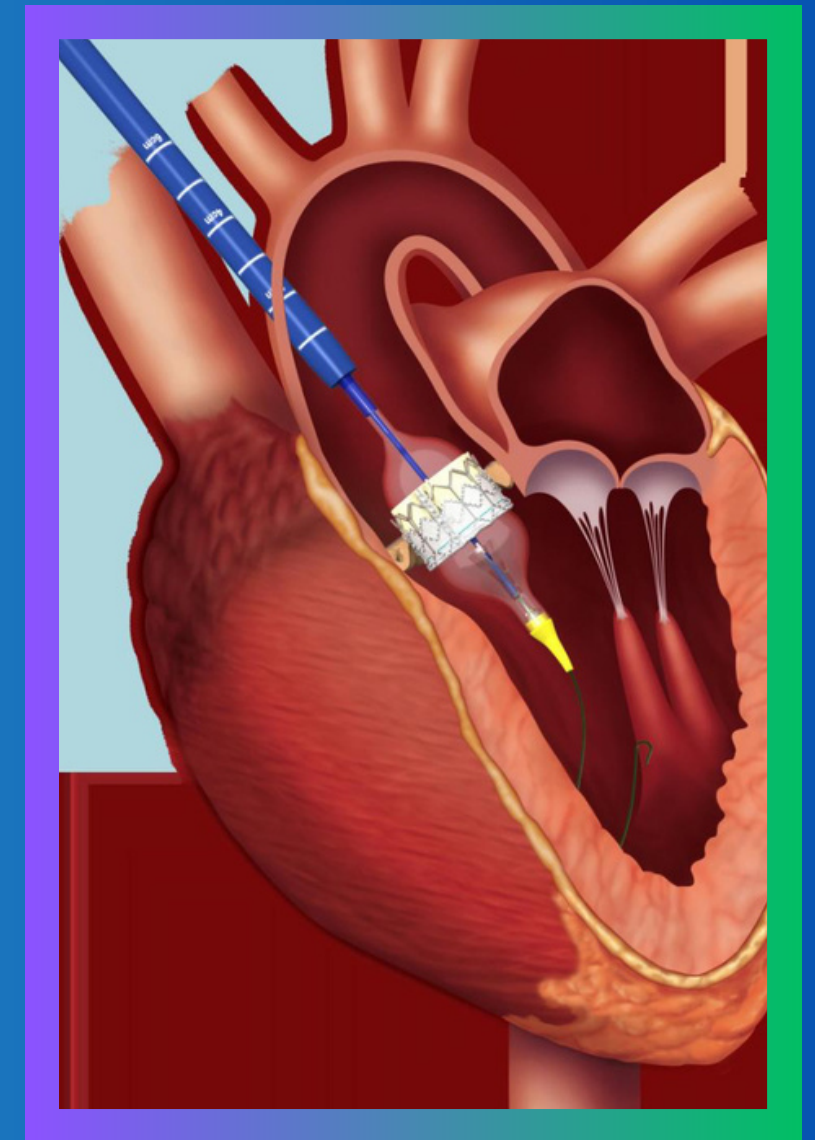


## **Interviewing an Engineer: Introduction**



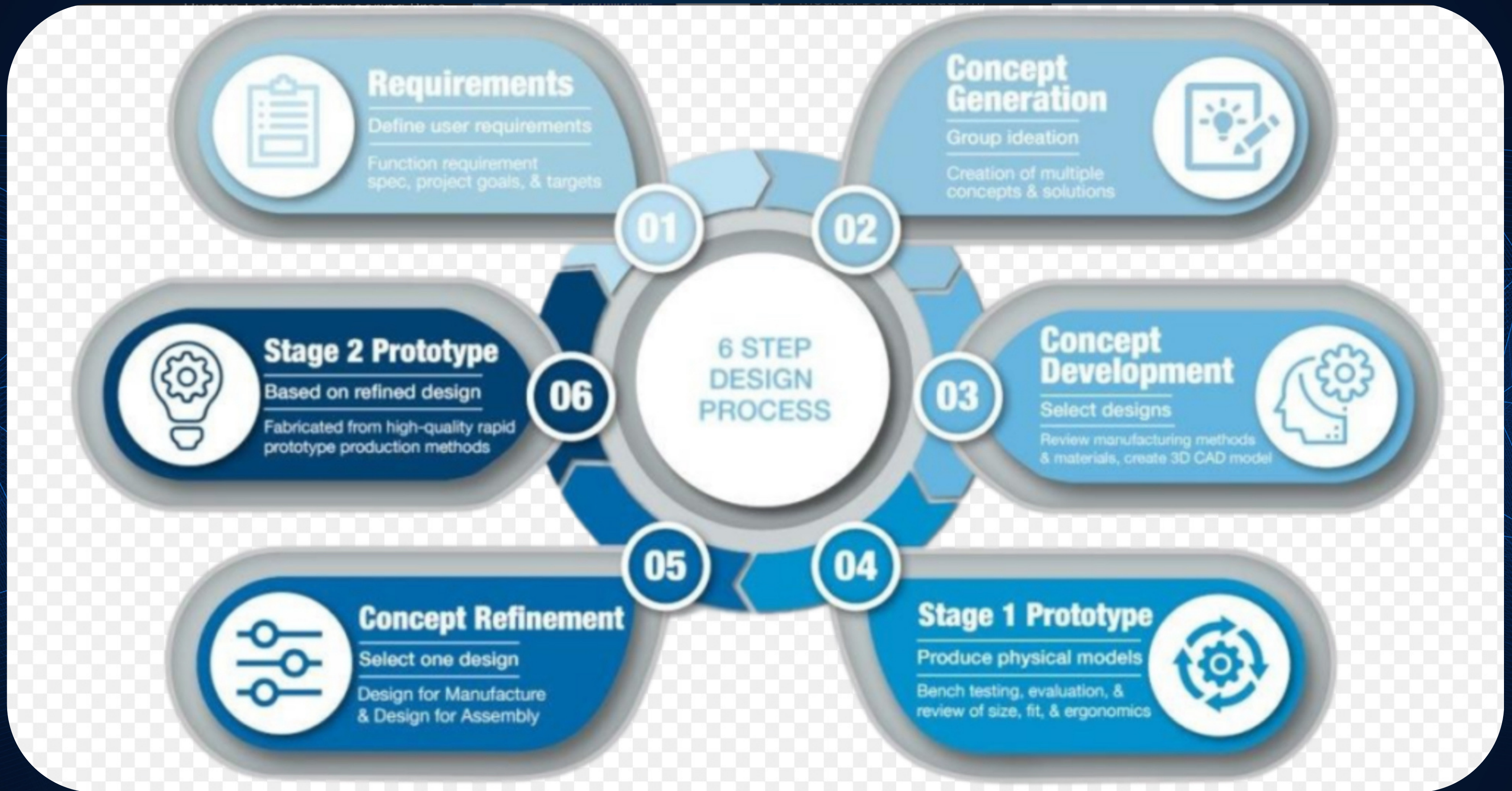
# Interview (Continued)

To design a heart valve implant, one of the needs identified was that it must function for a minimum of 10 years inside a human body. This user need was then converted into engineering specifications. A product is then designed using different techniques such as computer engineering simulations etc. to ensure that it meets the engineering specifications. Once the product is designed, it is tested to ensure that all the requirements are met. After this step, the product is ready for manufacturing and for being used on patients after receiving necessary regulatory approvals.





# Biomedical Engineering Design Process





# **Does Biomedical EDP differ from Vex IQ EDP Process?**

There are no significant differences between the two processes other than the fact that Medical Devices are highly regulated by the government as they impact human lives.



# How has Vex IQ Robotics Prepared us for our Future Careers?

- **Product Building:** Creating a fully functional robot has given us the skills, experience and confidence to build a product which will help us in any engineering career in the future.
- **Engineering Notebook:** We realized that it is important to document project details for future reference in order to make design changes for continuous improvements.
- **Engineering Design Process:** We understood EDP can be applied to any problem solving scenario in any profession.
- **Teamwork:** We learned that teamwork is very important to utilize different people's strengths for the success of any project.