A new robotic surgery system gives orthopedic surgeons the ability to perform partial knee replacement surgery with pinpoint accuracy by customizing surgery for each individual patient.

The NavioPFS system, manufactured by Blue Belt Technologies, allows surgeons to upload imaging to the system and maps out exactly where the implant needs to go. If the surgeon needs to adjust the implant a few degrees, the robotic system allows them to do that with more precision.

“In partial knee replacement surgery, accurate placement is the key to the implant working well and lasting a long time," said Stephen Incavo, M.D., a Houston Methodist orthopedic surgeon specializing in adult joint replacements. "That is why this technology has so much potential."

A partial knee replacement is preferred when it is an option because it feels more natural to the patient," said Incavo, who also serves as a professor of clinical orthopedic surgery at Weill Cornell Medical College. "Patients achieve higher function and range of motion with a partial replacement. Patients also have a faster recovery time and less pain after surgery than there would be with a traditional total knee replacement. A robotically assisted partial knee replacement is a tremendous surgical option for patients."