

HAPTIC INPUT DEVICE FOR REMOTE SURGICAL INSTRUMENTS

ABSTRACT

A haptic input device for remote surgical instruments and a method of manufacturing the haptic input device are disclosed. The haptic input device comprises: a handle portion having at least an area configured to contact a user's hand, the handle portion configured to be rotatable about its vertical axis, wherein movements of the handle portion about a horizontal pitch axis are constrained confining the handle portion into a constant pitch orientation; a trigger mechanism having a trigger operatively coupled to the handle portion and configured to activate or deactivate the remote surgical instrument by displacement of the trigger; a wrist mechanism coupled to the handle portion and operatively connected to the remote surgical instrument to control a yaw of the remote surgical instrument at a distal end, wherein the wrist mechanism is adapted to maintain the pitch orientation of the handle portion about the horizontal pitch axis; and one or more sensors disposed on a surface of the handle portion, the one or more sensors configured to gather sensor data to determine a presence of the user's hand based on the sensor data.

[FIG. 1A]