

WORMSCOPE© Led to Two Innovative Ideas: Combination with AI for “Self-Guidance” and “Remote Endoscopy”

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After successful processing of WORMSCOPE for manufacturing by several manufacturing companies, a new two innovative ideas have been emerged which are only supported by this device.

The first innovative idea is the combination of Artificial Intelligence (AI) with WORMSCOPE for “**Self-Guidance**”. AI has been integrated in many aspects of our life. It has already been combined with traditional endoscopes to detect some lesions in gut (especially polyps). Therefore, AI can also be combined with wormscope in a way that enables the device to guide itself through the lumen of gut without the assistance of operator who will be just an observer.

Wormscope can be set to work either manually or automatically (through AI) which makes the device to do peristaltic movement, air push, water push, and suction automatically according to the situations around it as long as the lumen of gut in front is normal, but once the device detects any lesion around, then it will stop, send alarm, and wait a decision from operator. Once the decision has been made regarding instrumentation (or may ignore the lesion), the operator has the option to continue with AI or change to manual option at any time.

The second innovative idea is the “**Remote or On-Line Endoscopy**”. It means that the operator can do endoscopy by wormscope for a patient from a distant workplace, such as from another city or another country!

Since the joystick (or remote control) of wormscope can be wireless, i.e., not attached niether to the processor nor to the wormscope; therefore, wormscope can be controlled by the joystick through the

internet which is connected to the Wi-Fi in the endoscopy room. This Wi-Fi will send signals to wormscope and receive signals from the processor.

The operator from distant workplace should be supplied with a big screen which displays two halves, one for camera of wormscope and the other for camera in the endoscopy room which displays the patient and the assistant with live communication with them, as if the operator is present virtually in the field.

The assistant consist of one or more persons who present physically in the endoscopy room and apply the orders and instructions of the operator such as insertion and withdrawal of wormscope as well as instrumentations under supervision of the operator, just like in the usual session of wormscope endoscopy when the operator is present physically in the endoscopy room.

However, for safety issue the assistant should has the facility to make shrinkage situation and withdrawal of the device at any time in case of internet or Wi-Fi connection failure.