

# AUTONOMOUS ROBOT FOR PROSTATE BIOPSY & BRACHYTHERAPY



## Keywords

- Prostate
- LDR Brachytherapy
- Robot Arm
- Loose Seed Procedure
- Supervision Software
- Treatment Planning Software
- Biopsy



## Intellectual Property

Patent application: FR 15 56702  
 Priority Date 2015/07/16  
 PCT/FR2016/051783: 2016/07/12



## Development Status

Laboratory Prototype tested on Phantom and anatomical subjects



## Partnership

Licence to an industrial partner in capacity to obtain the CE Mark and/or FDA and to commercialise the product.

## Technology

This technology is developed for Permanent or Low Dose Rate (LDR) Brachytherapy and prostate biopsy.

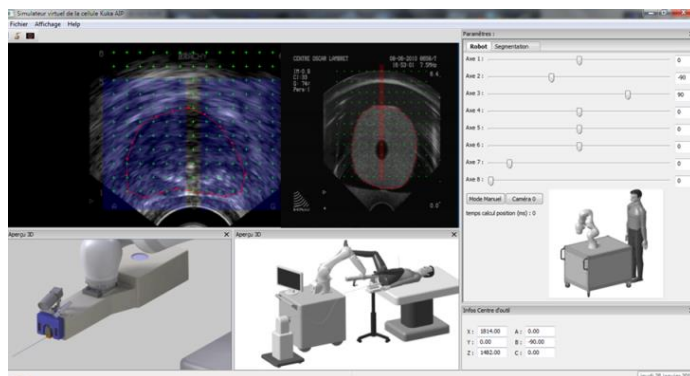
The autonomous robot performing treatment or diagnosis is composed of :

### A robot arm:

- Low Space requirement
- Manual control available

### An operating unit :

- Needle deviation sensor
- Position sensor
- Autocalibration of the device
- Loose seeds procedure
- Seeds magazine & loader



### A supervision software

- A Treatment Planning System designed for robotized prostate LDR brachytherapy
- 2D or 3D endorectal ultrasound probe and monitor
- Graphical user interface and target real time imaging system

## Benefits

### Less Traumatic & invasive procedure

- Expected Low inflammation risk due to reduction of entry points

### Safer procedure for patients :

- Accurate placement of needle (5mm) as well as conventional procedures
- Stabilisation of the prostate with two needles

**Reliable** : Multiple sensors, real-time analysis

### Adaptable system to operating condition

**Possibility to perform complex procedure with more accuracy, flexibility and control**

### No need of Perineal Template

- Significant reduction of perineal entry points (6 to 8 instead of up to 50)
- Multiple insertion angles decreasing risk of prostate deformation
- One needle per procedure

### Faster procedure:

- Reduction of physician exposure to radio elements

## Applications

- Prostate LDR Brachytherapy
- Prostate Biopsy

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