CLAIMS:

1. A medical apparatus for prostate biopsy or radioactive particle implantation comprising:

a scanning and puncture assembly comprising:

an ultrasound probe having an internally rotatable ultrasonic transducer within a predetermined angular range to capture a series of sequential ultrasonic images in 3-spatial dimensions,

a needle for biopsy or for radioactive particle implantation;

a depth positioning module comprising a motor to adjust the insertion depth of the needle and a needle sheath arranged to surround and guide the needle; and

a puncture control module comprising one or more rotational linkages connected to the needle sheath to adjust an insertion angle of the needle and a motor configured to control movement of the one or more rotational linkages;

a support assembly to support the scanning and puncture assembly at a predetermined position relative to a patient; and

a computer comprising a memory and a processor configured to execute computer executable instructions for controlling the scanning and puncture assembly including the movement of the one or more rotational linkages to cause the adjustment of the insertion angle and the insertion depth of the needle according to a predetermined biopsy path.

2. The medical apparatus according to claim 1, wherein the support assembly comprises a plurality of articulated or rotatable joints to enable the support assembly to move to a predetermined position.

3. The medical apparatus according to claim 1, wherein the support assembly is connected to an examination table or a tripod.

4. The medical apparatus according to claim 1, wherein the computer further executes computer executable instructions to process real-time images obtained from the ultrasound probe.

5. The medical apparatus according to claim 4, further comprising two display screens connected to the computer to display the ultrasonic images captured by the ultrasound probe.

6. The medical apparatus according to claim 1, wherein the support assembly is connected to a probe holder of the scanning and puncture assembly.

7. The medical apparatus according to claim 6, wherein the ultrasound probe is held by the probe holder, and the probe holder is connected to the puncture control module, and the depth positioning module is connected to the puncture control module.

8. The medical apparatus according to claim 1, wherein:

a link end of at least one of the rotational linkages is connected to the needle sheath to control the insertion angle, the depth positioning module further comprises a needle holder to support a part of the needle extending from the needle sheath.

9. The medical apparatus according to claim 6, wherein the probe holder is directly connected to the support assembly, and the probe holder is manually adjustable to a predetermined position and the probe holder is releasably fixable in the predetermined position.

10. The medical apparatus according to claim 6, wherein the probe holder is connected to a track and is moved by a motor according to the execution of the computer executable instructions.

11. The medical apparatus according to claim 8, wherein the puncture control module further comprises a housing.

12. The medical apparatus according to claim 1, wherein the rotational linkages comprise a lead screw, a slider and links.

13. The medical apparatus according to claim 12, wherein the motor drives the slider to move the links causing link ends of the puncture control module and the needle sheath to move to a predetermined position.

14. The medical apparatus according to claim 12, wherein each rotational linkage is movable in a first plane independently to movement of another rotation linkage in a second plane, wherein the first plane is parallel to the second plane.

15. The medical apparatus according to claim 13, wherein end portions of the rotational linkages are connected to corresponding end portions of the needle sheath such that the direction and position of the needle sheath is adjustable.

16. The medical apparatus according to claim 8, wherein the needle sheath is a tubular structure having a predetermined length to permit the needle to pass therethrough.

17. The medical apparatus according to claim 8, wherein the needle holder defines a maximum insertion depth of the needle, and the needle holder is movable in an axial direction relative to the depth positioning module.

18. The medical apparatus according to claim 1, wherein the ultrasound probe is a 4D probe and includes an ultrasound scanning module and an internal motor for internally rotating the ultrasonic transducer.