Nanorobot Hardware Architecture for Medical Defense

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Abstract: This work presents a new approach with details on the integrated platform and hardware architecture for nanorobots application in epidemic control, which should enable real time *in vivo* prognosis of biohazard infection. The recent developments in the field of nanoelectronics, with transducers progressively shrinking down to smaller sizes through nanotechnology and carbon nanotubes, are expected to result in innovative biomedical instrumentation possibilities, with new therapies and efficient diagnosis methodologies. The use of integrated systems, smart biosensors, and programmable nanodevices are advancing nanoelectronics, enabling the progressive research and development of molecular machines. It should provide high precision pervasive biomedical monitoring with real time data transmission. The use of nanobioelectronics as embedded systems is the natural pathway towards manufacturing methodology to achieve nanorobot applications out of laboratories sooner as possible. To demonstrate the practical application of medical nanorobotics, a 3D simulation based on clinical data addresses how to integrate communication with nanorobots using RFID, mobile phones, and satellites, applied to long distance ubiquitous surveillance and health monitoring for troops in conflict zones. Therefore, the current model can also be used to prevent and save a population against the case of some targeted epidemic disease.

Keywords: Architecture, biohazard defense system, CMOS integrated circuits, device prototyping, hardware, medical nanorobotics, nanobioelectronics, nanobiosensor, proteomics.