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Computer Engineering

300L

ENG 319

① Application of Actuators in Biomedical Fields.

Analysis

Diagnosis

Drug Delivery

Cell Culture.

① Drug delivery: The success of this system is only possible through MEMS technology. The pump can be guided wirelessly & their effectiveness can be monitored with ease. When current is applied to a electrode (platinum) water (electrolyte) splits into hydrogen & oxygen gases. This changes result in the pressure increase within the electrolyte chamber which thus expands & drives the drug out of the reservoir.

② Cell Culture: Advancement in the field of micro fluids system in last two decades has raised concerns with regard with the manipulation & handling of minute sample of fluids, such as heating, transport, flow control or mixing. These advancements mean the solenoid-actuated micro valves are essential to current practices. These miniature valves utilize advanced inter digital transducers (IDTs) & small scale reception apparatus to set up a safe remote connection to outside gadgets. Power from the radio frequency beams is exchanged from the surface & acoustic wave.

Application of sensors in biomedical field'

① Brain Stimulator

② Heart Failure monitoring.

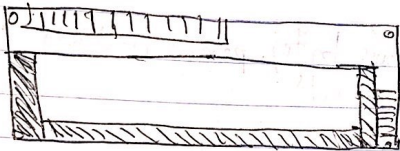
③ Blood glucose level.

④ Orthopedic disease.

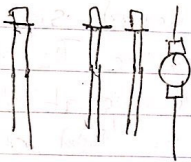
Sewage material are thought to be a new product with potential in the material market. From filament till texture or even ready made dresses that functionalization (main motive) of material is handled intricately & imaginative innovative approach is required for assembling a brilliant material joining ordinary material assembling advances as string weaving & weaving form. e.g. lithography

② Components of a basic measuring instrument

① 16 x 2 LCD



② LEDs



③ DSP Based Telemetry System For Defibrillation & Pacemaker.

Challenges

Design a PC card to implement new communication protocol with. Outstretches new line of implantable ~~etc~~ pacemakers. & defibrillators, keeping compatibility with all previous models, significantly increasing the data band width, improving immunity to EMS, & improving the interface to facilitate development of application software.

Design concept

An intelligent interface card with the ability to access command from a host computer containing message packet to be formatted and transmitted to the implanted device & to receive device & format the response of the implanted device.

Solution

An ISA bus card was developed to process the signals from an existing handheld coil. Data band width was increased an order of magnitude over existing product. Noise immunity was improved by processing the low level pulses in the frequency device using a digital signal process. Poven process engineers designed & developed the Psp based electronic electronic the printed circuit board layout, the firmware that was resident on the board.

② Handheld Isotrophic Drug Delay Device

Challenges

Develop an electronic battery powered hand held 'topical drug delay device' the product was to be sold.

Design Concept

The device was to efficiently incorporate electro motive drug administration to ~~be~~ enhance the effectiveness to a presented pharmaceutical. The design became a plastic molded signature finger application with a front mounted application disc. The drug was to be loaded into the front end of the device at the time manufactured application disc. The drug was being loaded into a patient would slide a finger into the rear of the enclosure & apply the drug to the area while electronics applied controlled electrical charge to the pharmaceutical.

Solution

The process designed feasibility & prototype units ~~at~~ enhancing, at each iteration, the disposable ergonomic function of the device. The investigation was at high speed assembly process to optimize design.