DEVOLOPMENT OF A BULK-MICROMACHINED PRESSURE AND FLOW SENSOR FOR USE IN BIOLOGICAL SYSTEMS.

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The use of pressure sensors in biological systems has the potential to provide accurate and real time information on the physical status of a subject. The addition of a flow sensor would allow a single device to transmit information regarding both blood pressure and blood flow in the body. This has a great deal of scientific and medical value. The intention of this work is to create a small and implantable device capable of relaying these basic biological details via magnetic inductance. In this presentation, the goals of this project will be presented, along with the results of the accomplishments so far achieved in the design. The development of an extended heavy doping process was performed successfully to achieve heavily doped regions as deep as 3 μm. This process was verified using a groove and stain technique to physically measure the junction depth of the doped region. The resulting silicon substrate was then subjected to 7 hours of KOH etching. This process took advantage of the selectivity of KOH to heavily doped Boron regions of silicon. The results were micro structures made entirely of silicon remaining after the etch process. It is this process that will allow the final completed devices to be separated from the silicon bulk. This process, appears to be fully repeatable and will allow the project to move to the creation of the device.