PROJECT DESCRIPTIONS

- Most technologies start as ideas, some in the form of scribbles on the back of napkin.

People with diabetes cannot make their own insulin, a hormone that is normally secreted by the pancreas. Insulin is essential to metabolize sugar and hence generate energy. Currently most diabetics inject insulin two or more times per day, with the dose injected based on readings of their blood sugar level. However, this results in artificial blood sugar fluctuations as it does not reflect the on-demand insulin production of the pancreas.

A personal insulin pump is an external device that mimics the function of the pancreas. It uses an embedded sensor to measure the blood sugar level at periodic intervals and then injects insulin to maintain the blood sugar at a 'normal' level. Using readings from the embedded sensor, the system automatically measures the level of glucose in the sufferer's body. Consecutive readings are compared and, if they indicate that the level of glucose is rising then insulin is injected to counteract this rise The ideal situation is a consistent level of sugar that is within some 'safe' band.

The project is required to analyze, design, and implement an insulin pump simulator (software) that can be used as a prototype of an insulin pump (hardware). The simulator emulates an insulin pump by providing the user with the functionality to perform a simulation of real-world events that would affect the pump software in different manners.