AMRITA VISHWA VIDYAPEETHAM

PROJECT UPDATE

Problems Faced and Solutions Derived

24AIM113 & 24AIM114

Introduction to NN, CNN and GNN

Analog system design

Team Members

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Faculty In-Charge: Dr. Amruta V & Dr. Snigdhatanu Acharya

Problems faced and solutions derived in the course project

PROBLEM	SOLUTION
Insulin pump motor: Initially we were not able to clearly deduce a method for insulin infusion. The method we selected was an automated syringe with a gear rack, which seem to be more complicated. Insulin storage was less than we needed.	We decided to take up peristaltic pump which is much more smaller, efficient and simpler, hereby solving the problem along with perfectly aligning to the volume measures we need. Along with a reservoir, it can store much more insulin than the previously proposed method.
Selection of a programmable microcontroller circuit board: Initially we were going with Arduino UNO, which was lacking in Bluetooth capabilities need to fit the wireless connection between the CGM and insulin pump.	We have shifted to ESP32 for its pro of having Bluetooth connectivity along with all the features provided by Arduino UNO. It is also more computationally powerful than UNO.
Finding a relating equation between Intensity output of NIR sensor and Glucose values to map the two in NN.	We visited our faculty in-charge, Dr. Snigdhatanu Acharya, for her inputs and got a suitable method to solve the problem.
What are the activation functions and number of layers in NN to be used?	Based upon the literature review, a single hidden layer neural network (Vanilla NN) could fit the job for our project. We are willing to use and test all the suitable activation functions, based upon experimentation, we will decide the right one for our project.