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(57) Abstract :

In the current pandemic situation, patients with critical diseases are lacking immediate care which would reduce the mortality rate. This invention focuses on continuous monitoring of patient's EEG signals for occurrence of any seizures in brain signals. This system is designed using machine learning algorithm for resource optimization thereby implemented using VLSI technology. The proposed algorithm provides competitive performance as it requires EEG signals only from front and frontal temporal lobes instead of signals from standard full EEG system. Seizure detection is accurate just by easily mountable headsets of dry electrode without the need of painful through-hair electrodes which is highly uncomfortable and uses adhesive material. Compact VLSI implementation is uploaded on low power FPGA Actel Igloo AGL250 that consumes 110 Watts of dynamic power and required 1237 logical elements, operating at a detection latency of 10.2 seconds provides specificity of 80.2% and sensitivity of detection as 92.6%.

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