The aim of this project is to propose a novel detection system for epileptic seizures based on inertial and physiological data. We want to investigate the impact of seizures on vital signs and to identify the most significant for seizures detection. We also want to investigate the best place of sensor on the patient body to detect or predict the seizures. The correlated changes between physiological data and inertial data must be exploited in the proposed detection system to reduce the false alarm rate and enhance the detection accuracy. Furthermore, modeling the patient motions before and after the seizure is necessary to enhance the detection accuracy.