Railway track condition monitoring system for detecting of obstacles ahead of a train using distributed fiber-optic acoustic sensing consists of a fiber-optic sensor cable deployed along the railway track on which the train is traveling. Additionally, a distributed acoustic sensing (DAS) system integrator and a data processing unit are connected to a fiber-optic sensor cable; the data processing unit receives acoustic signals along the railway track and is designed to determine the location and speed of the train. The distributed acoustic sensing (DAS) system integrator is designed to transmit optic impulses to a fiber-optic sensor cable. The system is designed to generate and transmit an alarm signal to the train operator via the train control system.