Obstructive sleep apnea (OSA) occurs in more than 4% of the adult population. Diagnoses for OSA in sleep clinics are costly and more than half of those submitted to a sleep clinic do not have OSA. A simple, easy, and portable homebased monitoring system to evaluate who are in high- or low risk of suffering from OSA would be beneficial. The system must be able to identify individuals with a high pre-test reliability regarding OSA with the aim of referral and further investigation. We aimed to develop a portable, smartphone, and home based monitoring system to classify whether a patient screened for sleep apnea is at high risk or low risk of having OSA. A new test setup was developed containing an Android based smartphone, the built in accelerometer, and a microphone. To ease the clinical analysis of the data a MATLAB based graphical user interface has been developed visualizing the data allowing the user to navigate through the data and the detected apnea events. The events are classified using both features from the audio and the signal from the accelerometer placed on sternum. Furthermore using the accelerometer data the sleep position is estimated and the morphology from the respiratory pattern is available describing the events and making it possible to distinguish between OSA and central sleep apnea (CSA).