

# Intelligent Rehabilitation and Affective Computing Systems (IRACS)



IIT Gandhinagar

IRACS is a multidisciplinary laboratory at IIT Gandhinagar, working towards building technology for healthcare. We are involved in developing socially-relevant applications for cutting-edge technology based on strong research, conceptualization, design and lab-based validation coupled with the clinical validation. This is a portfolio of the various solutions that offer low cost solutions for diagnostics and rehabilitation.



## Instrole



INSTROLE  
By IRACS

### About

Instrole is an Instrumented Shoe Insole that can offer real-time estimates of spatio-temporal gait-related indices that can be presented on a laptop, tablet, PC (desktop) and android phone-based interfaces. This is a light-weight portable Insole that can record one's gait events, such as heel-strike, heel-off, toe-strike and toe-off, processes the data in real-time to quantify one's gait in terms of stride time, step time, stride length, step length, cadence, %Stance, %Swing, Gait Stability Ratio, etc. These indices can in turn be used to monitor gait of both healthy and those with gait disorders.



### Status

The Instrole has been calibrated with standard stereophotogrammetric techniques, such as VICON. Also, many studies have been conducted using Instrole in Lab-based, community-based and hospital-based settings. The results are promising.

### Comparative Statement

Features	Competing brand 1	Competing brand 2	Competing brand 3	Instrole
Portability	No	No	Yes	Yes
Wireless Connectivity	No	No	Yes	Yes
Compatibility with mobile	No	No	No	Yes
System Complexity	High	High	High	Low
Cost	High	High	Mod.	Low
User-Centric Design	No	No	No	Yes

### Potential Applications (Customers)

- (i) Sports (Gyms)
- (ii) Gait Rehabilitation
- (iii) Elderly Care, etc.