

*The shoes are leather made,
orange suede on the outside.*

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Best foot forward

Travelling to a new city is a great way to spend the weekend and the arrival of budget carriers only increased the options for aspiring globetrotters. When you arrive at a new destination you are faced with the daunting prospect of navigating your way around without forgetting to enjoy yourself, which is the point after all. In your haste to visit all the monuments and museums on your 'must see' list, it is too easy to forget to enjoy the sights and sounds along the way.

Modern sightseers may have less use for printed maps than previous generations but the digital version, available on a smartphone for example, still results in tourists spending more time looking down at their map than up at their interesting and exciting new surroundings. EasyJet's new venture may make that a thing of the past with the creation of a smart shoe that helps you navigate without the need to look at a map in any form. As the UK airline puts it: "Travelling is not just about the destination, it's about enjoying the journey."

Sneakairs, the smart shoes developed by easyJet, are the result of a collaboration with technology expert D6, who specialises in the rapid development of prototypes. Those who have grown up in the age of social media, always on the lookout for the picture-perfect shot, can be safe in the knowledge that no aspect of their trip will be left undocumented and that there will be ample evidence of their adventures on their Instagram or Facebook accounts.

"We have developed this navigation solution because we have seen too many gaps in the market for a product," says Nuria Martínez, digital area director at D6. "It's also a great fit for an airline such as easyJet who fly so many people to new, perhaps unfamiliar destinations."

Peter Duffy, easyJet's marketing director, adds that the shoes are designed for "passengers who want to relax visiting a new

Low-cost airline easyJet has developed a prototype vibrating smart shoe that could help tourists find their way around cities more easily. The company is urging travellers to "forget your mobile and map, and get on with enjoying the city".

place without the need of a map and enjoy every moment while they explore a new city."

The smart shoes are equipped with a "low energy Bluetooth monitor" that is inserted beneath the insole and connects to a dedicated smartphone app. EasyJet's "pedestrian navigator" uses Google Maps technology and the app pinpoints the phone's GPS location to detect the proximity to an intersection. It is designed to run in the background so once the device has been synchronised with and the destination selected, the smartphone can be placed in a pocket or a bag and the jet-setter can focus on soaking up the sights.

Good vibrations

The wearer's GPS location is determined in relation to the desired destination and a small integrated vibration motor, similar to those used in smartphones, activates to tell the wearer which way to go. One vibration on the left shoe indicates that the wearer should take the next turn in that direction and the same applies for right turns. If a wrong turn is made both shoes will vibrate twice. Once the wearer turns back on to the correct course, single vibrations will continue to guide

them. Three vibrations indicates that the pre-programmed destination has been reached.

The electronics within the device are protected by a tailored plastic housing created using a 3D printer. EasyJet says it "helps maximise the contact area and distribute the vibration throughout the shoe".

The Sneakairs were unveiled in May last year at the Barcelona Street Project, an event organised by easyJet where the prototype also underwent its first test. Testers wearing the shoes were asked to walk to well-known landmarks around the city without a map to see if they were guided correctly. Reports from easyJet were that the trial was successful but as yet no further plans to test the Sneakairs have been announced.

EasyJet hopes that the product "could be developed for its passengers to purchase on-board in the future" although it isn't yet clear if they are comfortable enough for prolonged use or how much they might cost. Nor has any information been released concerning the waterproofing of the prototype and its built-in technology or how long they could function without the need for charging.

The airline says that the Sneakairs "combine low power consumption with optimum range and resistance to interference" and D6 insists that "throughout this project we had to factor in that it should be low in energy consumption" but poor battery life is likely to be the main barrier to any mainstream success.

As it stands, the Sneakairs are just an exercise in innovation. The website of The Barcelona Street Project gives visitors the chance to say if they 'like' the idea so that easyJet can gauge the interest from the public before deciding on the next step in development. The company says that the feedback received about the project so far has been "really positive" and that it will continue to work with its technology partner to make the Sneakairs a reality. Crowdfunding has not been publically discussed by the company but it is becoming increasingly common and potentially lucrative, so that it is a possible route forward in the future.

An easyJet spokesperson described the Sneakairs as "a versatile product built with components that can be used in almost any kind of footwear". The airline plans to continue its development of the technology and try to develop a smaller device that can be inserted into any shoes.

All about sole

This idea has already been explored by two companies who have trialled similar products based on vibrating sensors.

Anirudh Sharma, a researcher in Bangalore, India and his business partner Krispian Lawrence founded Ducere Technologies in 2011 with the aim of creating innovative examples of wearable technology. Together they created Lechal, a range of footwear initially designed to help visually-impaired people. In 2014 it launched a commercial version targeted at all people, although money from the sale of each pair was still donated to charities that help the blind.

The Lechal concept, which is Hindi for "take me along", was powered by a compact pod that can be snapped on to the company's specially designed shoe. In a similar way to the Sneakairs, it used Bluetooth to connect to a smartphone app and a motor within the stainless steel pod gave the wearer haptic or vibratory feedback to guide them to their destination. As well as a proximity sensor at the front of the shoe to detect

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The Sneakairs are not easyJet's first foray into wearable technology. To celebrate its 20th birthday in November 2015 the airline unveiled a series of prototype designs for cabin crew and ground staff that incorporate wearable technology.

The proposed cabin crew uniforms feature LEDs on the shoulders and illuminated hems to provide extra lighting in case of an emergency. Similar panels on jacket lapels would display important information like flight numbers and destinations and the designs feature built-in microphones to improve communication between the crew, pilots and passengers.

The ground staff uniforms have LEDs in the jacket cuffs to make aircraft movement on the ground safer. LEDs in the jacket hoods of engineers on the ground will allow them to work with both hands when carrying out aircraft inspections and maintenance. The uniforms also have reflective panels to make staff more visible when out on the air field, in-built cameras to allow quick diagnosis of technical issues remotely and microphones for instant communication with their base.

obstacles, vibration motors across the sole of the shoe would tell the wearer whether to carry on going straight, make a turn or go back.

The company further expanded the concept with a polyurethane insole that could be placed inside non-Lechal shoes. The insole had a compartment for the pod that was located underneath the most sensitive part of the foot to maximise the effect of the vibrations.

Dhairya Dand, a researcher at the Massachusetts Institute of Technology, developed a similar insole concept that he called SuperShoes. Rather than vibrate, the insole had three vibrotactile devices near the toes that tickled the foot when the wearer needed to change direction. Among the interesting features was an option to let the accompanying smartphone app plan a route depending on your schedule. It had the ability to check your calendar and plan a more scenic route if it was empty or a quicker route if you had an upcoming meeting or commitment.

No company has yet managed to establish a mainstream product of this type. The Apple Watch makes use of haptic signals on the wrist, but with easyJet's Sneakairs already at the prototype stage, perhaps it won't be long until a vibrating smart shoe offers stress-free navigation and changes the way we travel forever. 