***Foogue: Eyes-Free Interaction Article Notes***

Introduction

* Utilises spatial audio and gesture input
* Use of smart-phones banned due to 3 reasons
  + Limited information can be displayed due to screen size
  + User's focus must be on the screen at a close distance
  + Interaction involves looking and focusing at the screen which means focus is lost elsewhere

Foogue

* Foogue, a 3D audio interface that supports menu navigation, item selection and window management via haptic interaction
* Supports 2 modes; Menu Mode & Listening Mode
* Menu Mode
  + Grant quick access to files
  + File structure is presented within 120 degrees in front of the user, the user then points the smart-phone at a certain angle until a spatial sound is triggered, informing the user that there is a folder/item at that angle. An 'open gesture' is then used and the user is then descended into that folder/item
  + Items can be placed into a buffer using a 'buffer gesture' to allow for multiple selection to either move/open the files
  + A player is then used to 'play' the specific type of item
* Listening Mode
  + Make listening to files as comfortable as possible
  + Switched by using a 'listening gesture', players are structured around the user in 360 degrees, which can be moved using a 'drag and drop gesture'. The user can multi-task through the different players by turning the device to an angle and push/pull the device to increase/decrease the players volume respectively.
* Allows users to interact with their device without visual attention
* Involves a combination of 3D interaction techniques (point, torch, push, pull etc) and also 2D interaction techniques (gestures used on the screen to instigate a particular action)
* Utilises gyroscopes, digital compasses and cameras to determine the device's position, relative to the user

Similar Devices

* Nomadic Radio
  + Shoulder-worn speaker and microphone which can be interacted with using voice commands or haptic interaction to allow it to operate with the system

Tutorial Notes

* Evaluation not included, software may have been tested but nothing has been reported
* Not suitable as a replacement method for when driving
  + distractions
  + not legal to wear headphones, perhaps use the cars stereo system
  + still using one hand for the device
* 10-12 degree wedges perhaps may be a bit more accurate
* must listen to all the of the file names before distinguishing the file you want to select
* size filter/sort can be considered useless as its difficult to know the file by the amount of size it takes
* motor memory can change, for example knowing roughly where the 'S' files are kept. Files can be added/deleted, thus making a change of where the 'S' files are kept
* system may have been thrown off when walking as the motion may overthrow the systems hardware
* awkward to interact with players behind you within listening mode
* human ears are not best suited to follow the direction of the sound, can be difficult to determine players behind us
* major issues with players behind the user
* Can be difficult to understand more than 1 player playing sounds from one direction
* Headphones reduce spatial awareness as you can't hear sounds from the environment
* No instructions on how the player can be paused, rewinded, fast forwarded etc
* Difficulty if the user has difficulty hearing from 1 ear
* people with visual impairments may refuse to use earphones as they use audio and general sounds to know their surroundings
* not very socially acceptable, as it can be very intrusive
* idea is innovative, if designed better then could possibly be used. Maybe introduce another sense instead of solely relying on audio
* Careful when writing the report, instead of believing that a product may/may not work, explain why it would/wouldn't