5 Interaction Design (HG)

Your company has been asked to design and implement an interface called GestureDriver which is envisioned to be a remote driving interface based on visual gesturing and speech. Hand motions will be tracked based on colour vision, and the system will classify the gestures using a simple geometric model. The gestures will be mapped into six motion commands: start, right, left, forward, reverse, and stop. These commands can also be provided via speech and transmitted to the remote vehicle. The major requirements are that the system displays the current location of the vehicle to the user, monitors location change, captures the motion and vocal command of the user in real time, and moves the vehicle based on the received command.

(a) One of the Principles of Good Design is to 'balance automated and human control'. Give four examples and explain how this can be achieved for the context provided above. [4 marks]

(b) Describe, with an example, each of the five different interaction spaces beyond the desktop as classified by Winograd. Briefly discuss which one(s) would be more appropriate to use for creating this application, and why. [6 marks]

(c) Assuming that the initial system status is OFF, draw a task model for the user using the GestureDriver interface with the goal of reversing the vehicle they are operating remotely. The task model should capture activities at multiple levels starting with at least three activities. Explain any sequential dependencies you identify. [8 marks]

(d) Describe one generic problem that task analysis can help identify, and give an example of how this can be done. [2 marks]