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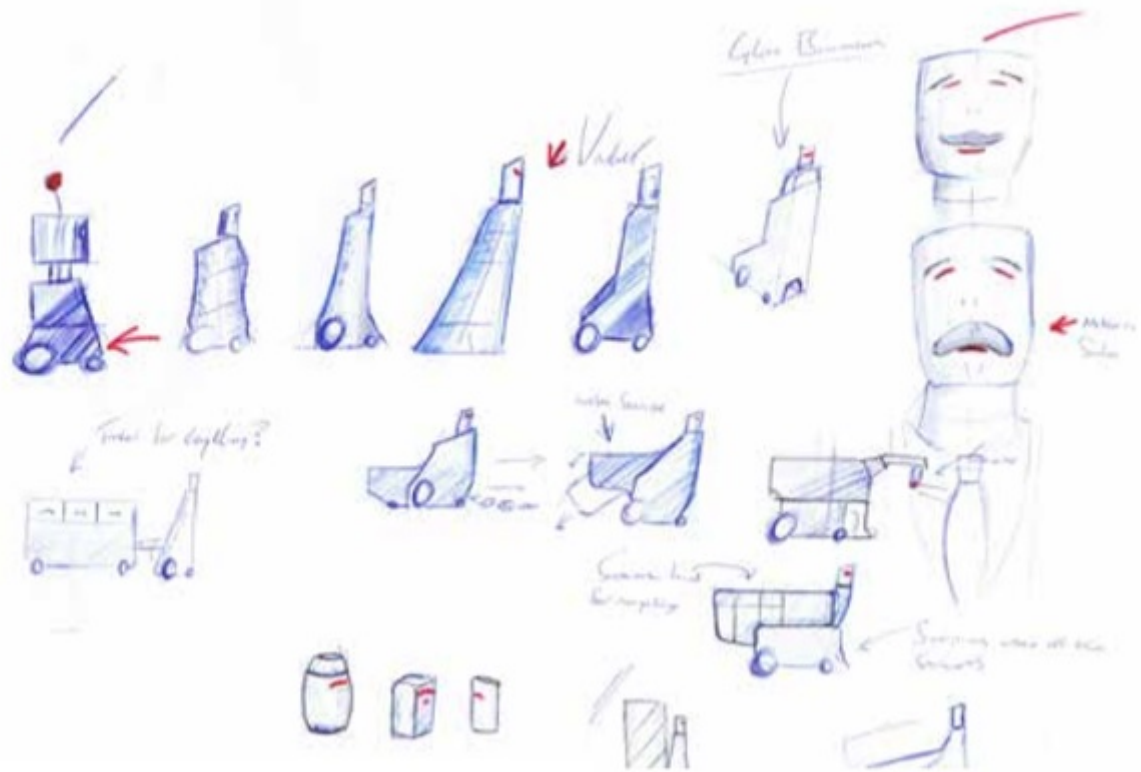
# **1. Background**

The original design was made by students of Industrial Product Design. One of the first things they produced was a morphological chart. The chart is made to create an overview of all options and functions of the robot.

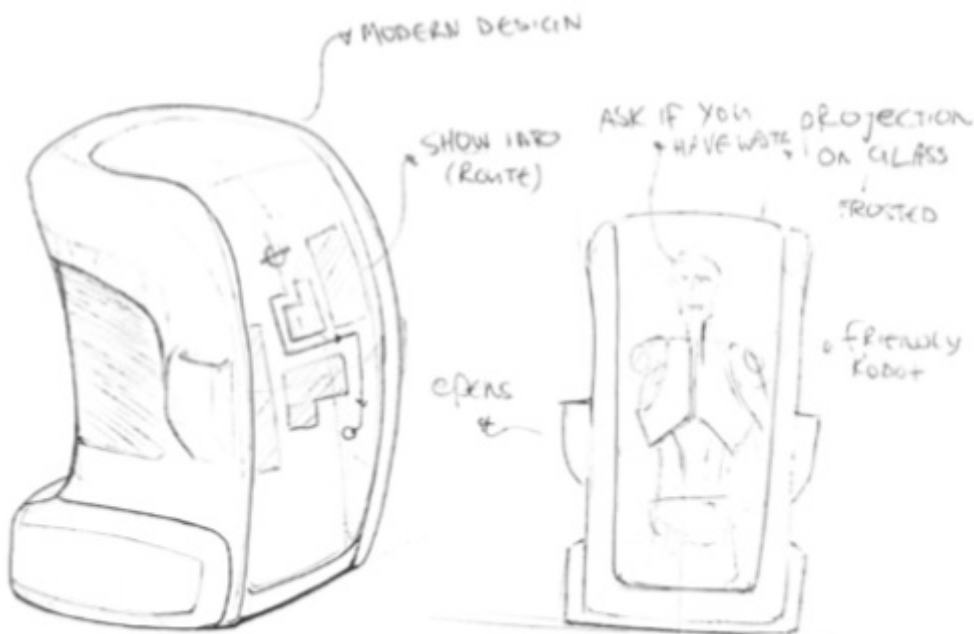
# Morphological chart

Detect Human	 Camera	 Sensor	 App	 Drone	 Touch screen
Interaction with Human	 App	 Face	 Sound	 Screen	 Gestures
Detect waste	 Camera	 Sensor	 App	 Drone	 Color
Pick up small waste	 Air	 Brush	 Mechanical	 Scoop	 Broom
Pick up big waste	 Open	 Mechanical	 Hook	 Lift	 Vacuum / Air
Waste disposal	 Recycling	 Burn	 Disposal Robot	 By Human	 Re-use it
Charge battery	 Station	 Moving charger	 Wind energy	 Solar energy	 By Human
Move around	 Wheel	 Fly	 Tread	 Walk	 Air flow
Protect against damage	 Alarm	 Camera	 Snake	 Aggressive	 Police

With the morphological chart in mind they started brainstorming and made sketches from the ideas they had.



One of the early designs is the one below. In this design a large TV screen is already installed. The idea of a butler like robot came to mind. Willy has to be polite, informative and have a strong character.



Because of the complexity the idea above was not realistic to make as a prototyping project. This is one of the reasons why they made a less complex version which certainly is realistic to make.

