Given the functionality to be provided, what are the minimal resources required?

Given the resources that are available, what is the maximal functionality that can be provided?
Given the functionality to be provided, what are the **minimal resources** required?
Roomba
$200

Roomba 980
$900
Coordination: trade-offs of platform vs infrastructure complexity

centralized / vision

distributed / vision

distributed / network

safety

performance

functionality

complexity of infrastructure

complexity of platform

resources
minimize
(resources usage)

subject to
(functionality constraints)

specification
catalogue of parts

“automated roboticist”

optimal design

catalogue of parts

“automated roboticist”

specification

optimal design

resources usage

functionality constraints

minimize

subject to