



**BME 590: FUNDAMENTALS OF
ENGINEERING DESIGN**

DECOMPOSITION OF A PROJECT

Salinas - Fall 2017



DECOMPOSITION

DECOMP

DECOMPOSITION:

A process that involves separating large design into smaller, more manageable pieces

KITCHEN REMODEL

WHICH COMPONENTS WOULD NEED TO
BE SEPARATED OUT FOR PROPER DESIGN



PROPER DECOMPOSITION

Separating fridge operation from stove
operation

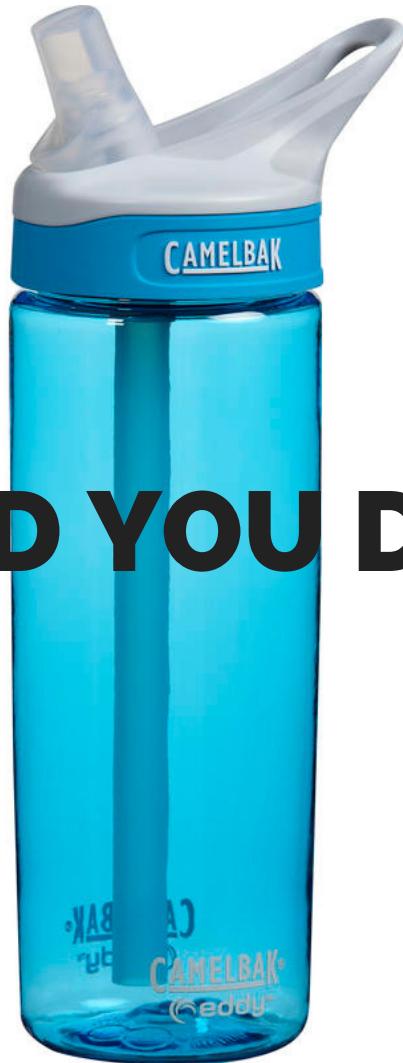
IMPROPER DECOMPOSITION

Separating sink from dishwasher
these components will use same water supply

CREATE PROJECT BLOCKS

- Must be doable by an individual/small group
- Must be independent of one another
- Successful if managed by individual with strong skills aligned with area of block

SCALING DOWN: (example)



HOW WOULD YOU DECOMPOSE?

SCALING DOWN: (example)

Waterbottle parts:

- bottle
- straw
- top
- hinged mouthpiece
- valve



DECOMPOSITION HELPFUL FOR:

PROTOTYPING--

Isolate discrete parts of design

Create and test prototypes for individual parts

DECISION MATRICES--

Select and sort methods on decomposed parts

Streamlines decision process

BRAINSTORMING--

Facilitates creative thinking

Results in new ideas

Decomposition succeeds
with good synthesis:

Understanding overlap
between design blocks

Communication
with team
members

Coordination of
design decisions

