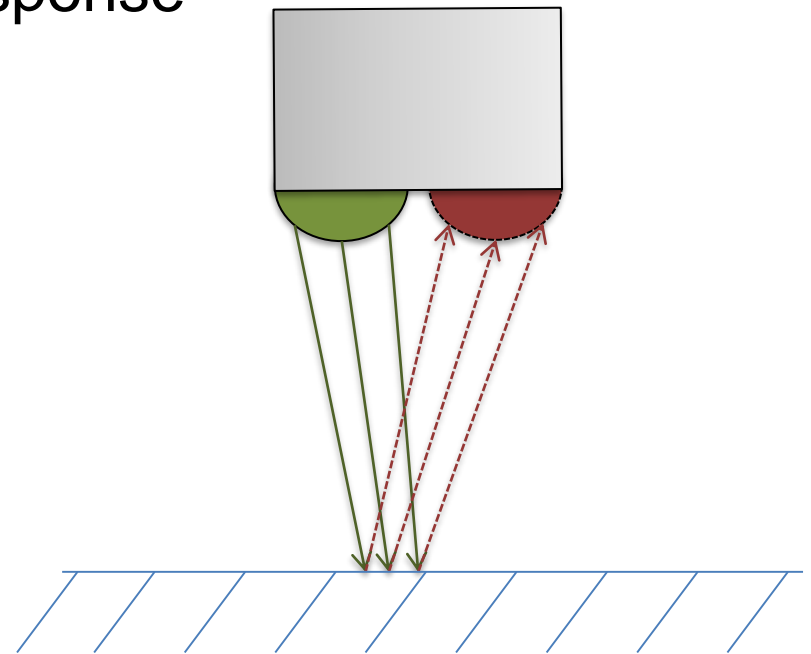


- The polymer is equipped with a „fingerprint“
- The „fingerprint“ is added via taggant particles in the masterbatch
- An LED illuminates the particles
- The sensor then reads the response



# What are Taggants?

## Definition von taggant

Englisch: taggant

**taggant** in British  
(ˈtæɡənt)

Substantiv

1. electronics

a microscopic material added to a substance to enable it to be tracked by radio frequency

2. chemistry

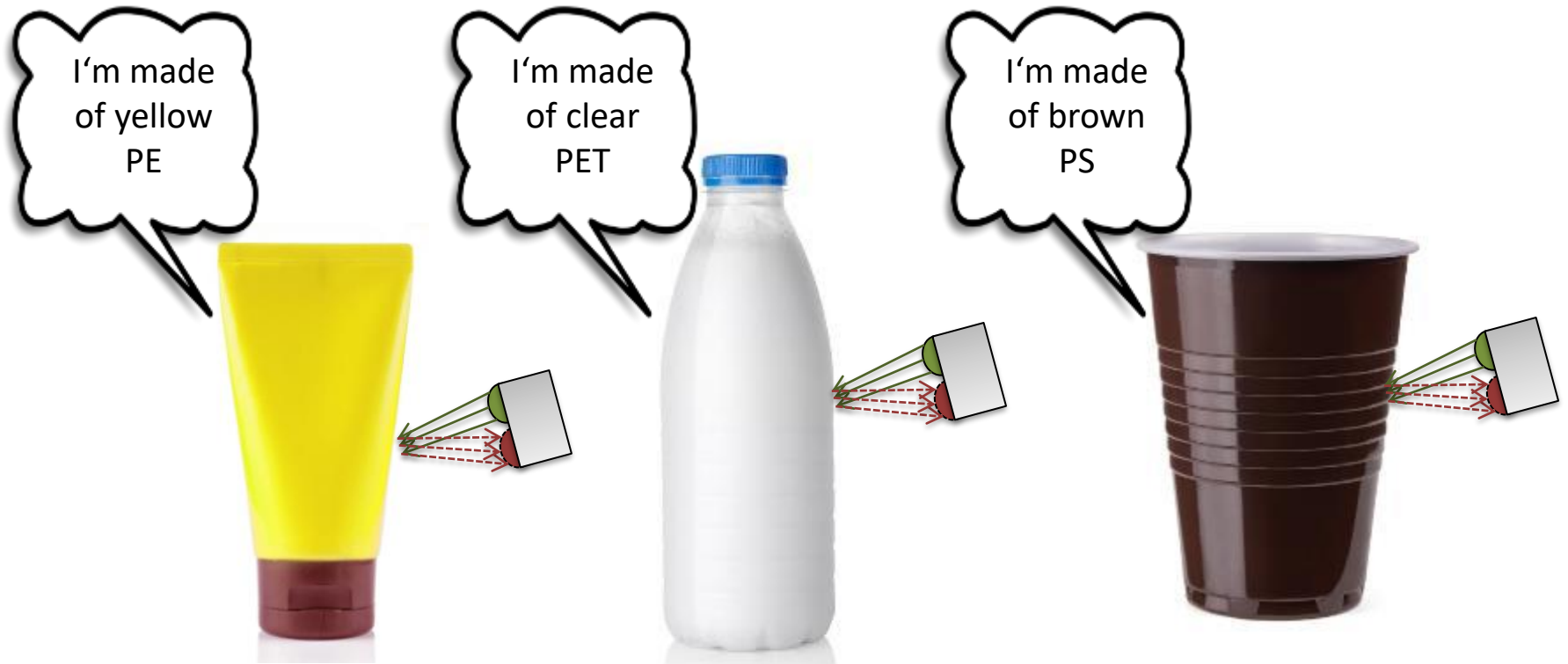
a chemical marker used in various kinds of testing

*Collins English Dictionary. Copyright © HarperCollins Publishers*

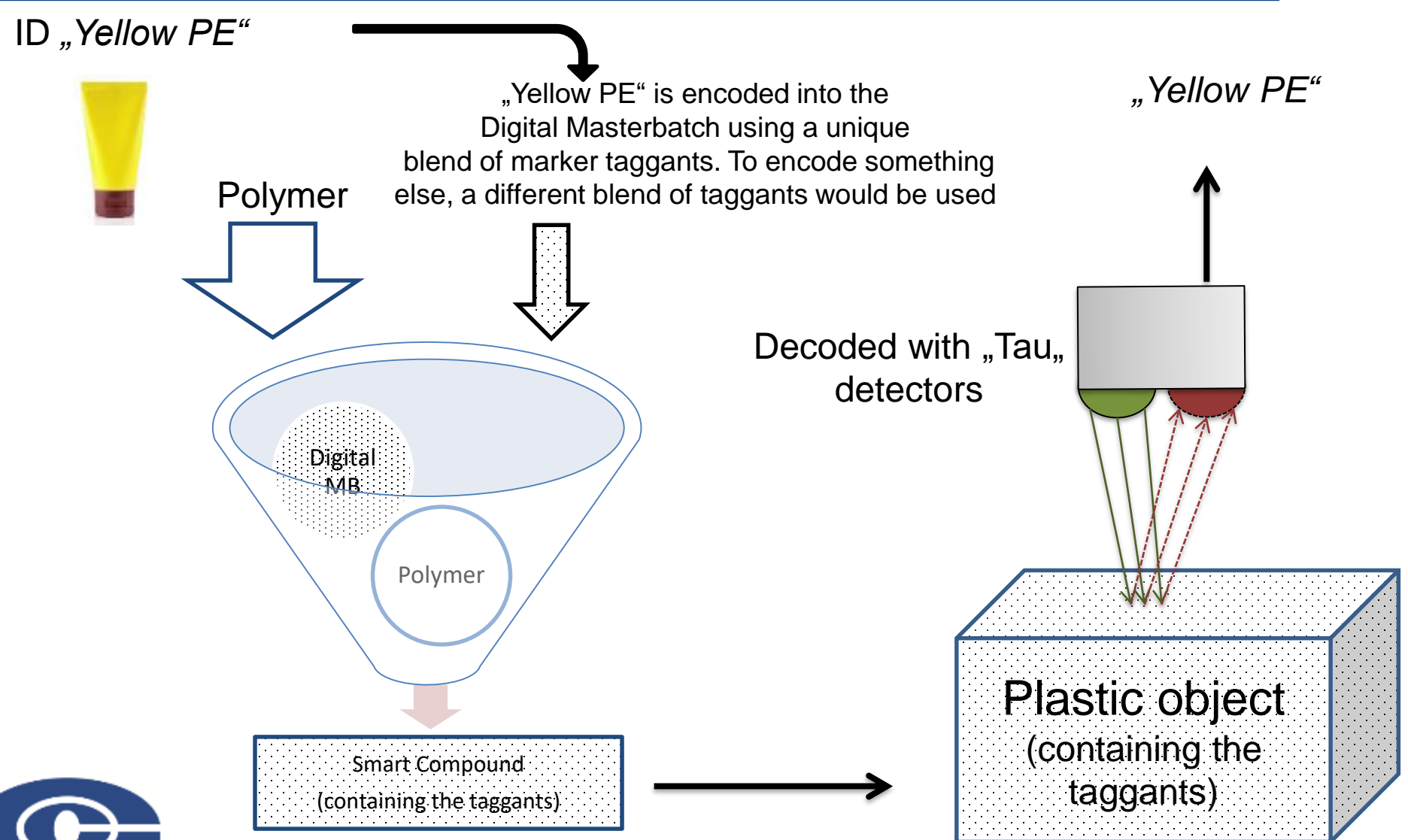


# Function 1 –Material Identification

- What are you made of ?



# Function1: How It Works

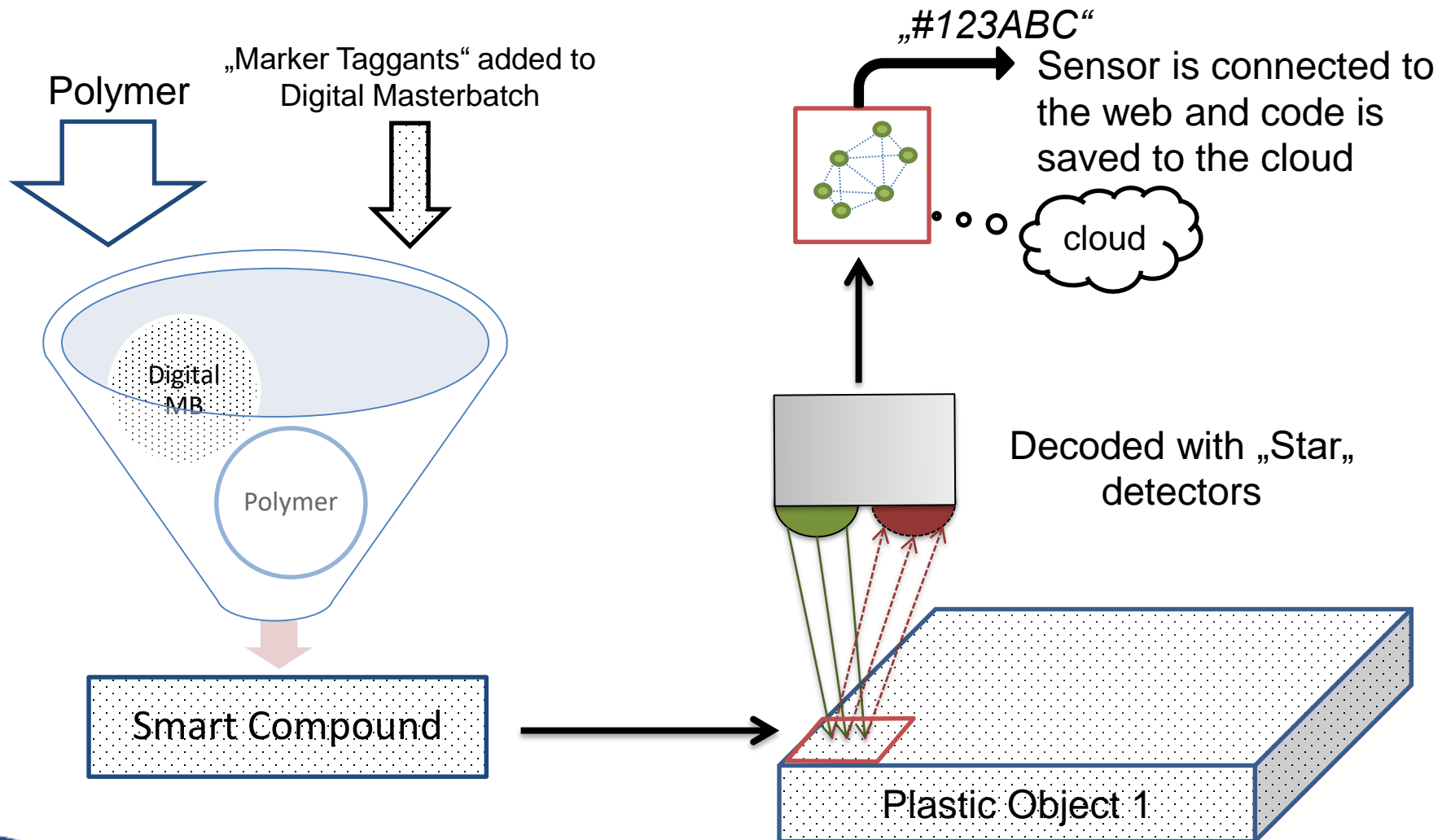


# Function 2: Individual Part Identification

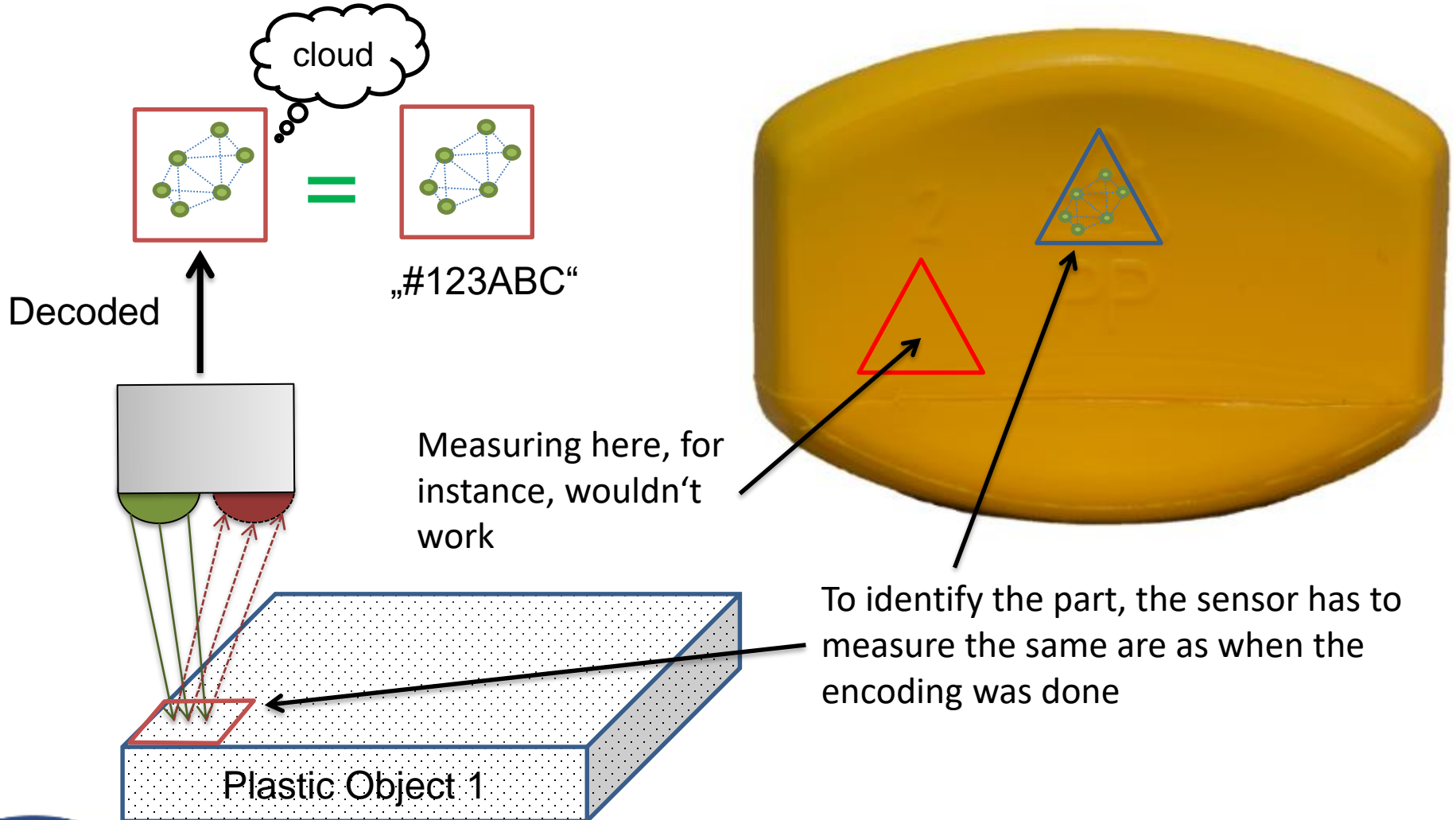
- Every individual part has a unique ID
- A „reference area“ is a defined surface area on the part
- The reference area has to be the same for both encoding and decoding



# Function 2: Part ID - Encoding

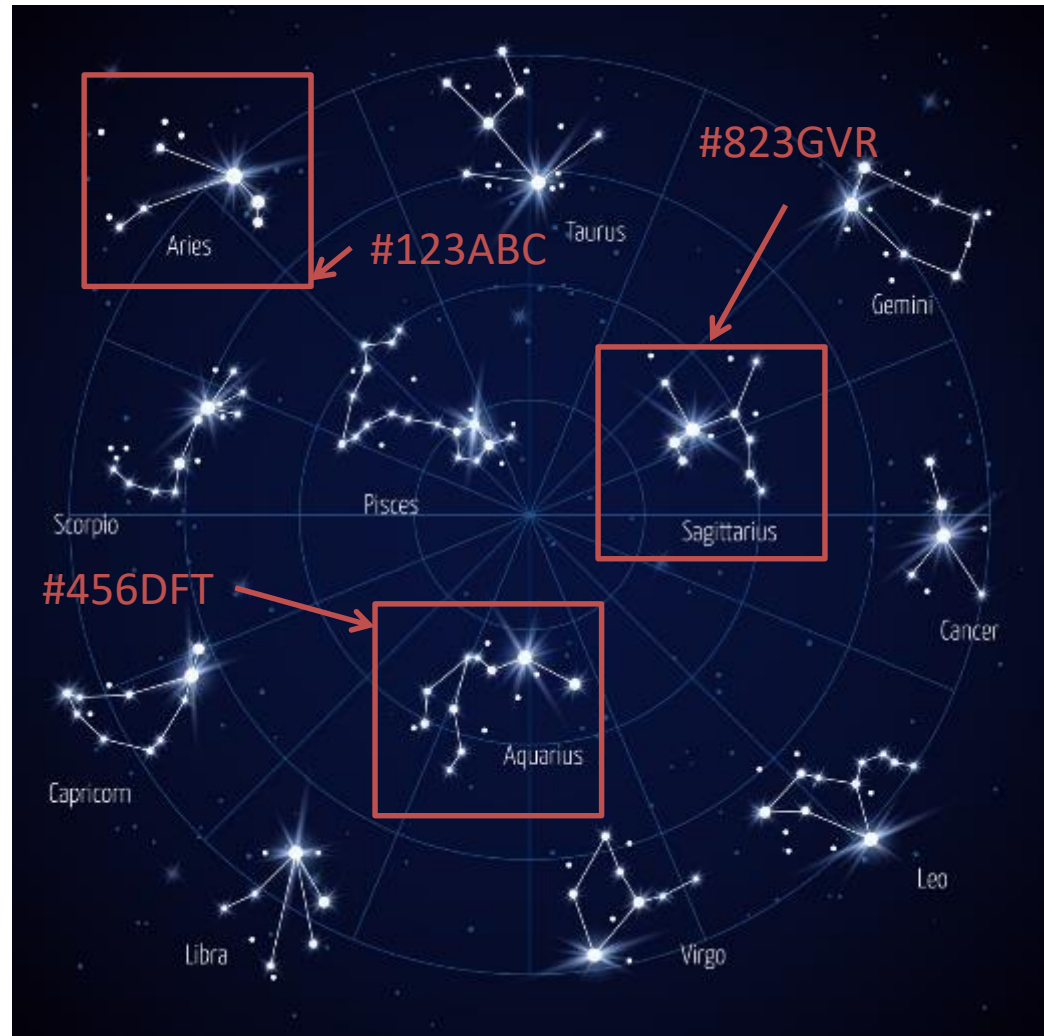


# Function 2: Part ID - Decoding



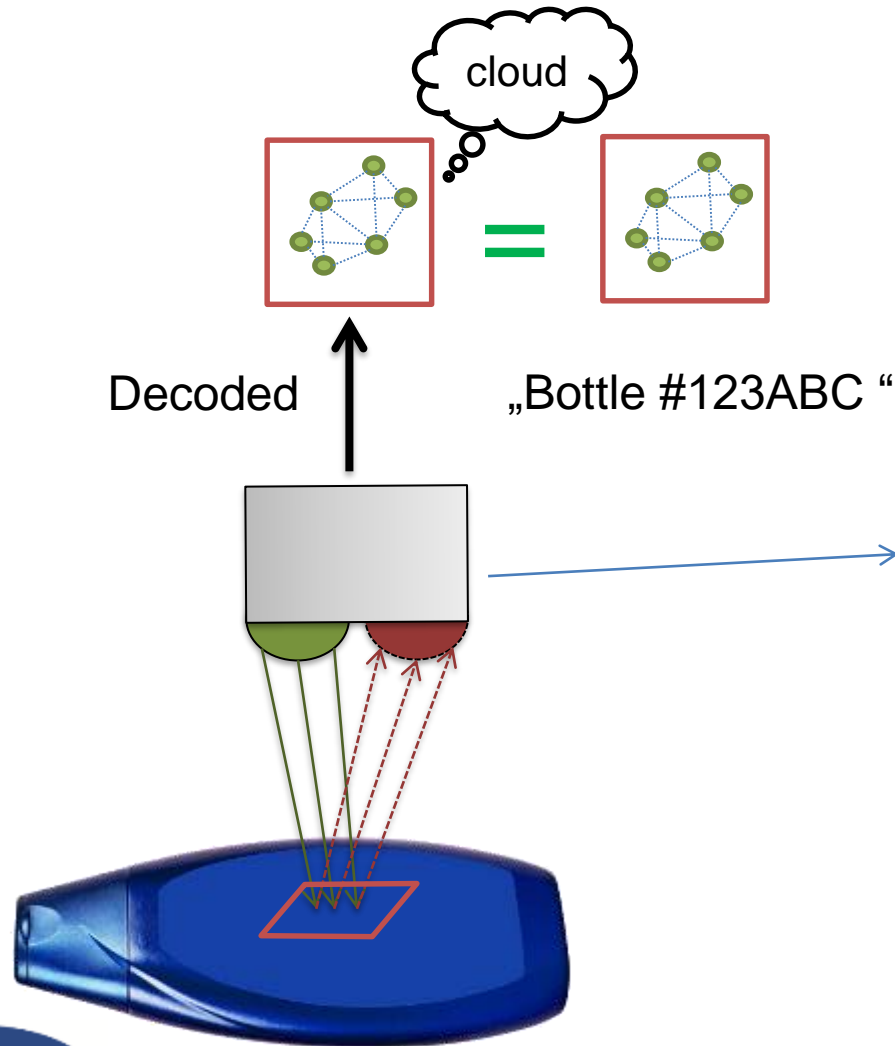
# Function 2: Individual Part Identification

- The technology is similar to looking at the night sky
- The stars (marker pigments) are randomly distributed
- By looking in a specific location a unique pattern can be detected and named (encoded) e.g. Aquarius
- Looking in the same location at a later date, the pattern can be recognized again (decoded) e.g. Aquarius





# Function 2: Individual Part Identification



- A real world example using the available smartphone sensor



The visible green spots are „illuminated“ marker particles



