Girls in ICT 2020

CLEAN BOTTLE

Ms;Earth
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The Need for CLEAN BOTTLE

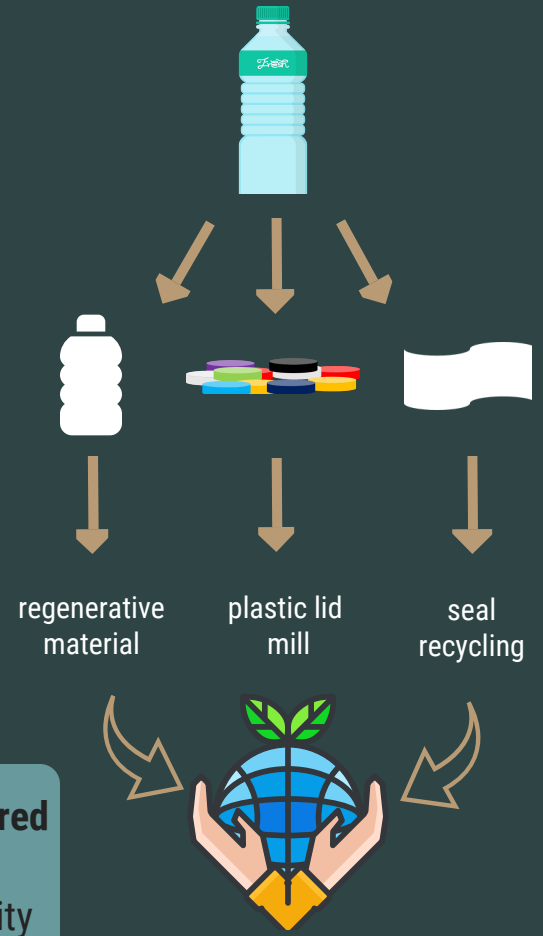
Lifecycle of a plastic bottle largely contributes to climate change
South Korea consumers recycle **80%** of plastic bottles, only **10%** is used to create high-quality regenerative material

plastic caps, seals, colored plastic bottles, inner content create low-quality regenerative material

Clean Bottle helps ease this process

Starting from December 2020

Thus, it becomes mandatory in South Korea to **remove** the seals and the plastic lid from the clear plastic bottle when recycling starting from December 2020



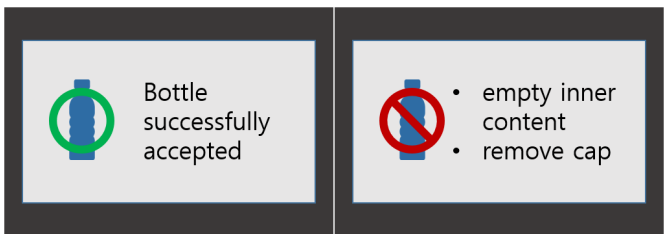
CLEAN BOTTLE

The Hardware of CLEAN BOTTLE

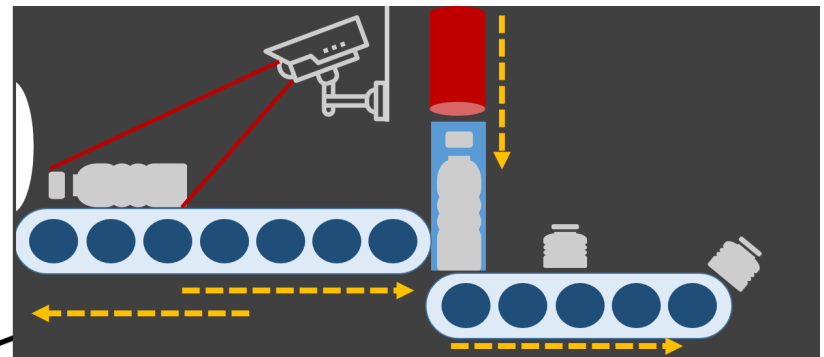
CLEAN BOTTLE

Insert Bottle > Camera Detects > Machine Learning > Return or Take in > Compress > Store > Display Success

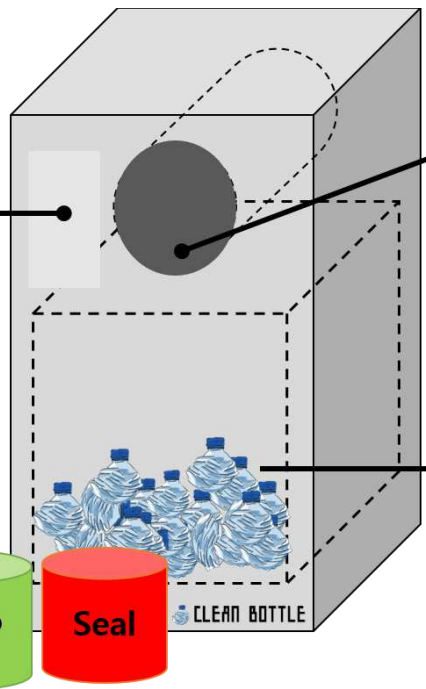
Process of Clean Bottle



Panel
Left content: when bottle is accepted
Right content: when bottle is not accepted (reasons for non-acceptance are displayed)



Infrared sensor detects bottle & picture is taken
Accepted: conveyor belt moves forward, bottle is crushed and stored
Denied: conveyor belt moves backward



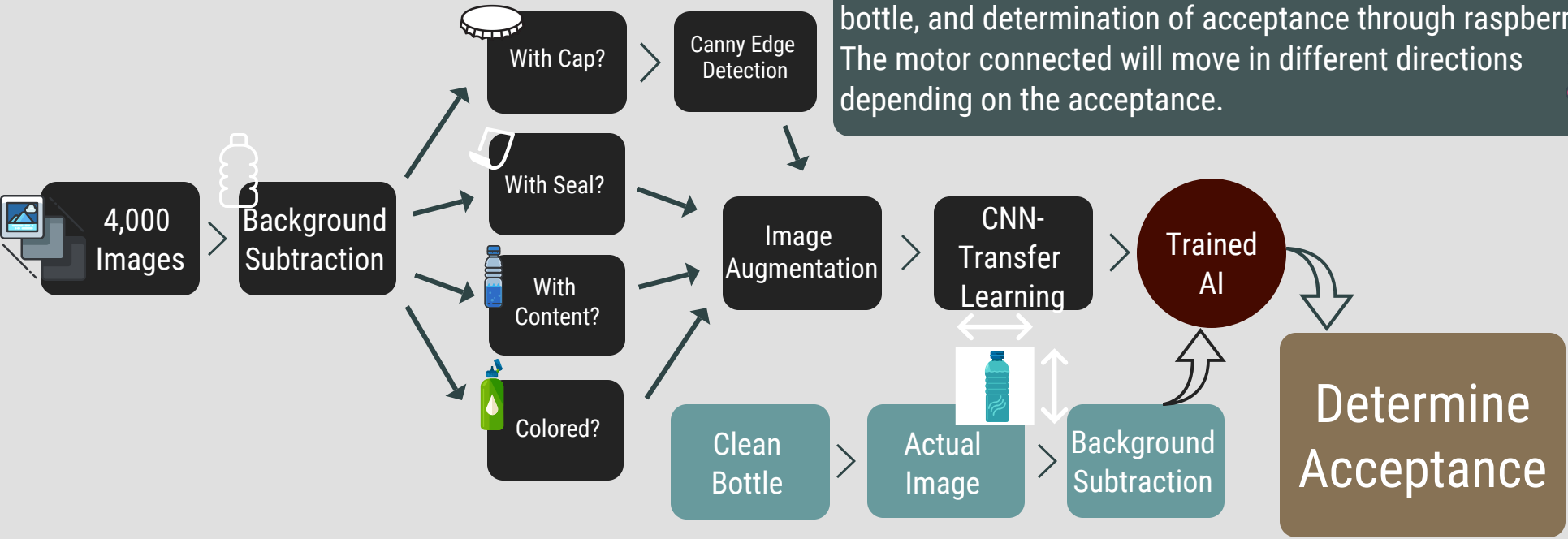
Caps and seals are stored separately and recycled accordingly

Clean bottles are recycled to

and so more

The Software of CLEAN BOTTLE

In the hackathon, we will be demonstrating the detection of the bottle, and determination of acceptance through raspberry pi. The motor connected will move in different directions depending on the acceptance.



Convolutional Neural Network - Transfer Learning (SqueezeNet)

CNN is a class of Deep Neural Networks (DNN) which is feedforward Artificial Neural Network (ANN) used to analyze visual images. It was first introduced to handle images more effectively by applying filtering techniques to ANN, and later a form of CNN, currently being used in deep learning.

Among CNN architectures, SqueezeNet is an architecture structure that has the same level of accuracy as AlexNet but can reduce parameters by more than 50 times and have less than 0.5MB of model size. Our project is based on using CNN, SqueezeNet.

Thank You