# Computer vision and analysis

**Priority:** High

**As a:**  Software engineer

**I want to:** Use computer vision software to differentiate between different shapes and their colours and also detect their centroid.

**So I can:** Effectively sort between various different shapes on a surface and have a specific point where a robotic arm can create a vacuum seal on.

## Acceptance Criteria

**Given:** A set of shapes with different colours on a flat surface of known distance from camera

**When:** The camera begins scanning the area

**Then:** The software can detect theshapes of the objects and read what colour they are. The software must also calculate the centroid of the observed shape for later use.

# Robotic arm movement

**Priority:** High

**As a:** Software engineer

**I want to:** Control a dobot arm’s movements and suction gripping functionality

**So I can :** Precisely position the vacuum gripper on a exact location grip the object and then place it on a conveyor of known location.

## Acceptance Criteria

**Given:** Location of the centroid of an object previously calculated with computer vision and the location of the conveyor

**When:** All location information is available

**Then:** The robotic arm will pick an object and place it on the conveyor before returning to the scanning location.

# User Interface

**Priority:** High

**As a:** Software engineer

**I want to:** Display the shapes seen by the computer vision software on a screen, which can be interacted with.

**So I can:** Allow the user to see what the computer vision software is has read in an understandable format and can then select which object they want to pick and place on conveyor.

## Acceptance Criteria

**Given:** The shape data collected by the computer vision software

**When:** The information is displayed on a window on a computer screen

**Then:** The user must be able to select one of the shapes detected which will then be transported by the robotic arm to the conveyor