

# Scene Analysis for Visually Impaired

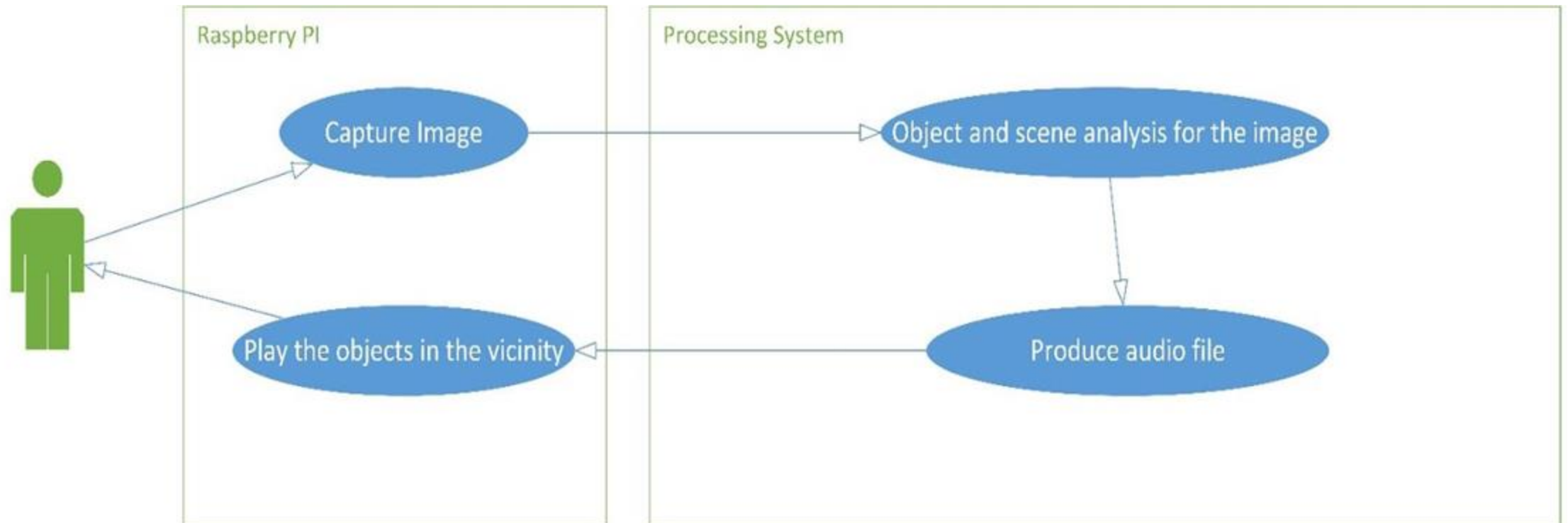
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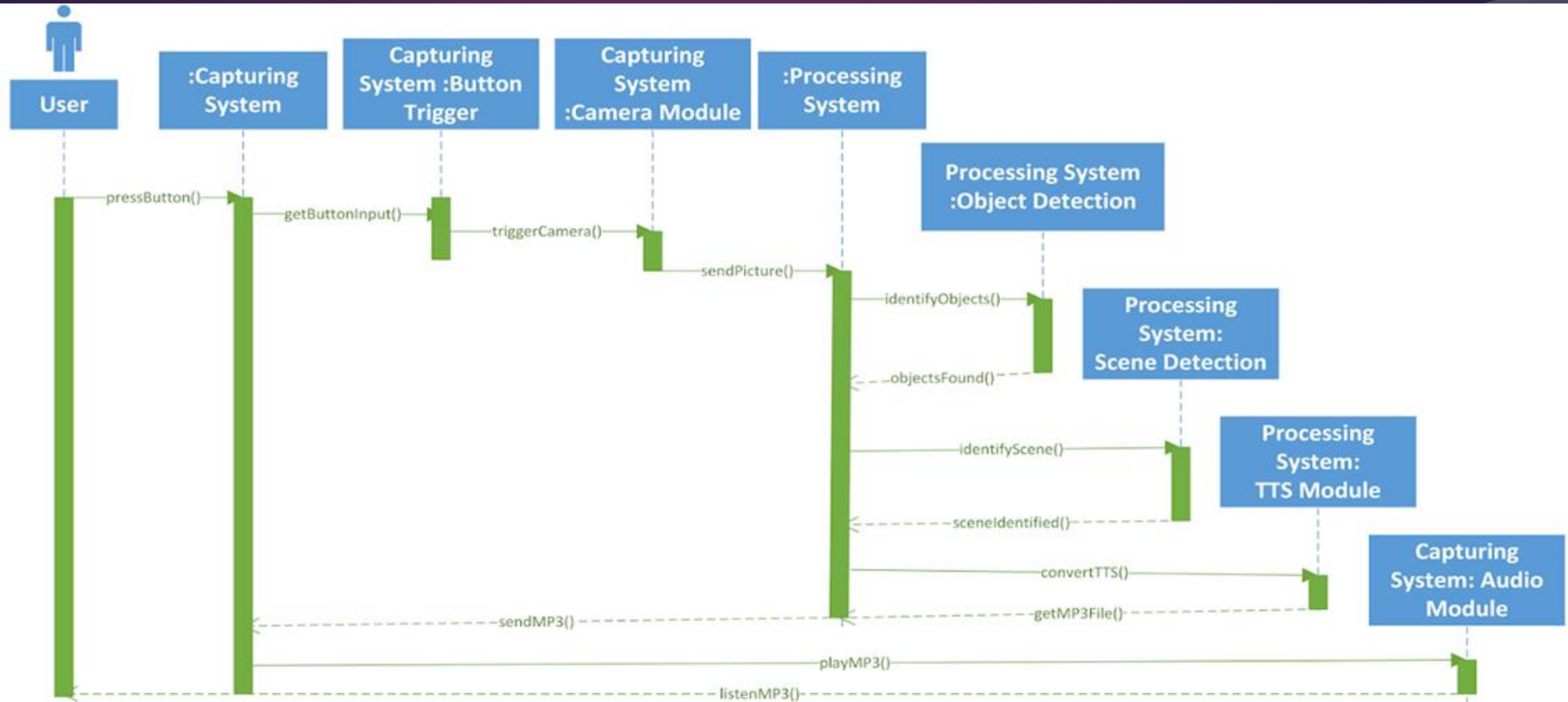


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# Design (Use case model)



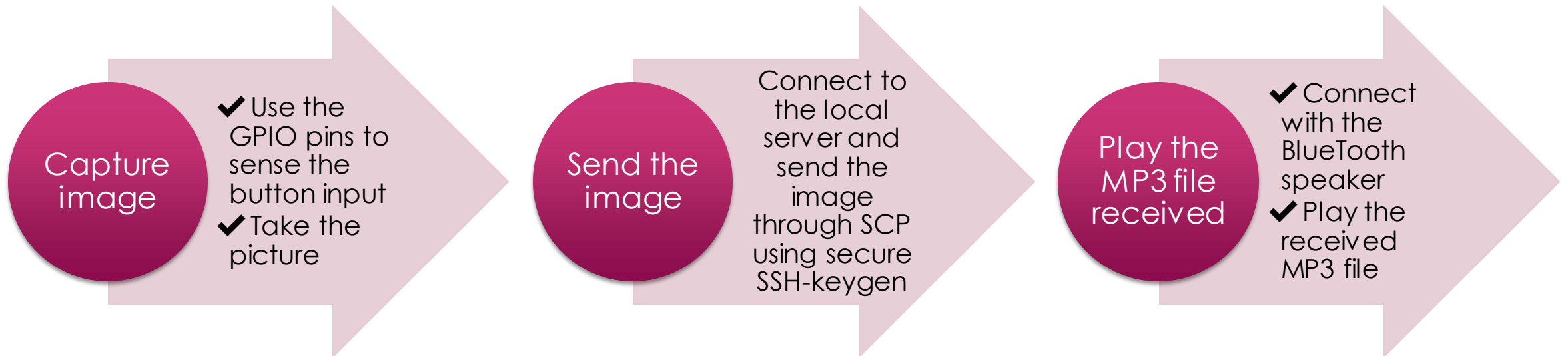
# Design (Sequence Diagram)



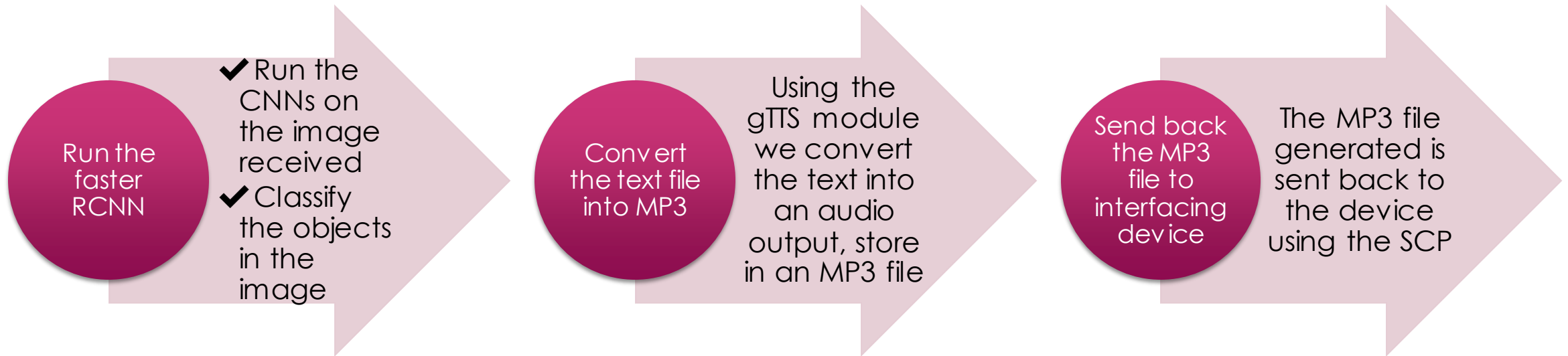
# Implementation

- ▶ Primarily the system consists of an **interfacing component** (capture device) i.e. Raspberry Pi and the **Processing component**
- ▶ Raspberry Pi performs a **3-stage process**:
  - ▶ **Capture image** after a button trigger
  - ▶ **Send Image** to local server
  - ▶ **Play** the received MP3 file
- ▶ The processing component is responsible for **3-stage process**:
  - ▶ **Run the Faster-RCNN** for object detection and a scene analysis thereafter
  - ▶ **Convert** the text predictions into MP3 file
  - ▶ **Send** the MP3 file to interfacing unit

# Interfacing Unit(Raspberry Pi)



# Processing Unit(Local server)



# Code

```
image = Image.open(TEST_IMAGE_PATHS)

image_np = load_image_into_numpy_array(image)

(boxes, scores, classes, num) = sess.run([detection_boxes, detection_scores, detection_classes,
num_detections])

print("The objects in the image:", file=recordFile)

for i in matching_classes:

    if (np.squeeze(scores)[i] >= 0.7):

        print(category_index[i]['name'], file=recordFile)
```

```
from ._conv import register_converters as _register_converters
2018-04-06 20:04:25.416077: I tensorflow/core/platform/cpu_feature_guard.cc:137] Your CPU supports instructions that this TensorFlow binary was not compiled to use: SSE4.1 SSE4.2 AVX AVX2 FMA
```

The objects in the image:

person  
dining table  
bottle  
cup  
chair

The Scene is classified as either:

food\_court  
cafeteria  
dining\_hall  
market/indoor  
flea\_market/indoor

```
karthik-beepi@karthikbeepi-Vostro-3546:~/ObjectDetection/Combined$
```



# Screenshot of the output





Thanking You!