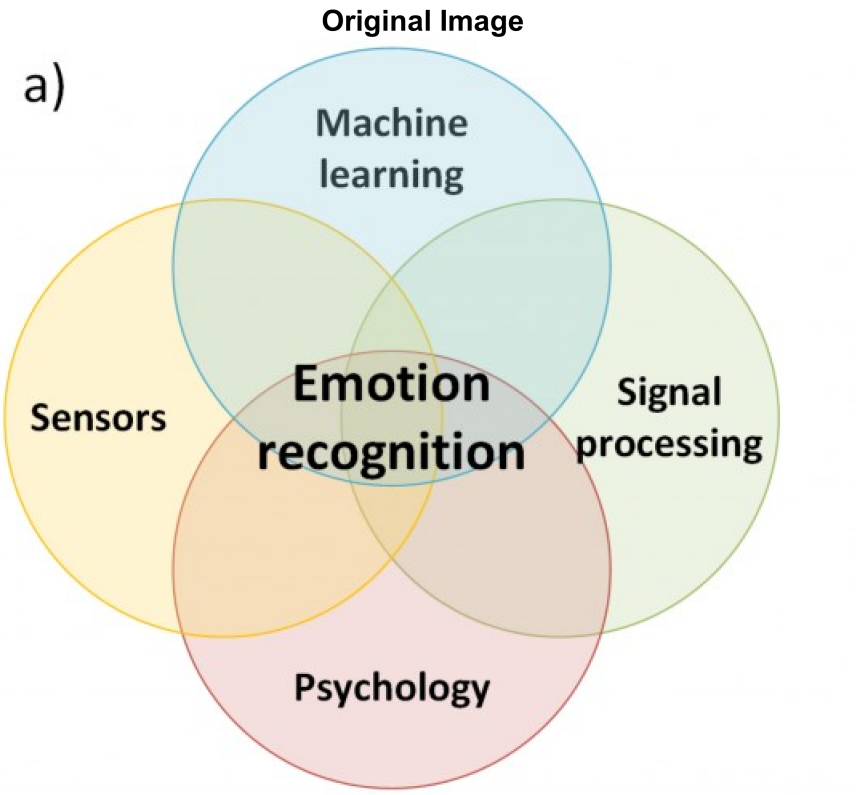
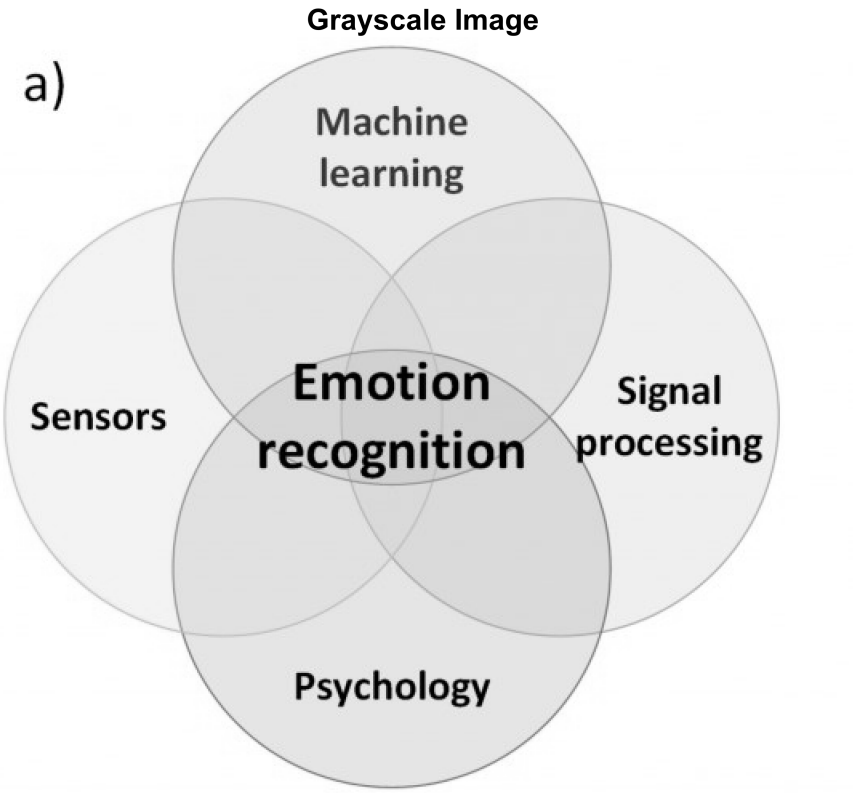
```
% Step 1: Loading the image
img = imread('C:\Users\sathwik\Downloads\Samp.jpg');
imshow(img), title('Original Image');
```




```
% Step 2: Converting the image to grayscale
grayImg = rgb2gray(img);  % Converts the RGB image to grayscale
figure, imshow(grayImg), title('Grayscale Image');
```

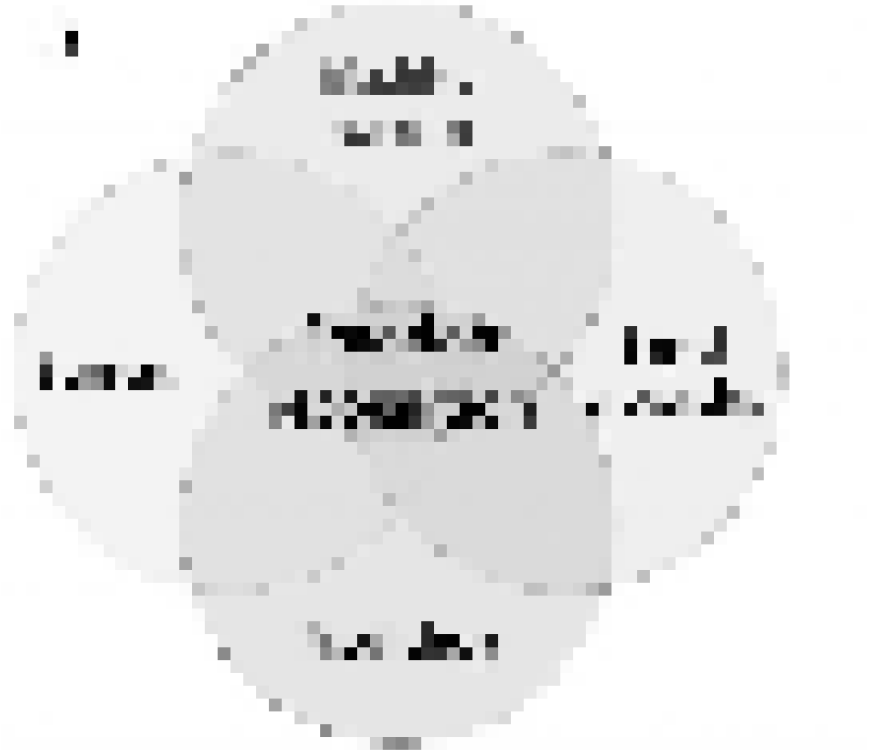



```
% Step 3: Reducing the image size using imresize
% Resize to 1/8th of the original size (since we are aiming for 32 levels and
256/32 = 8)
smallImg = imresize(grayImg, 1/8, 'nearest');

% Step 4: Resizing back to the original size
quantizedImg = imresize(smallImg, size(grayImg), 'nearest');  % Resize it back to
the original size

% Step 5: Quantized image
figure, imshow(quantizedImg), title('Quantized Image with 32 Grayscale Levels');
```

**Quantized Image with 32 Grayscale Levels**



I loaded a sample image using the imread function and converted it to grayscale with rgb2gray to focus on intensity values. To reduce the number of grayscale levels, I resized the image to 1/8th of its original size using imresize with the nearest interpolation method. This factor of 1/8 was chosen because it effectively reduces 256 grayscale levels to 32. After that, I resized the image back to its original dimensions, again using imresize. Finally, I displayed the quantized image, which now has only 32 grayscale levels.