Facial Emotion Recognition

Project 5
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1 Initiation Phase

1.1 Main goal

- Develop a "program" for facial emotion recognition from pictures.

    - Emotions: happy, sad, angry, neutral, afraid, disgusted, surprised.

- Include recognition for multiple faces in a picture.

- Include recognition from live video/webcam.

- Achieve at least 65% accuracy.

1.2 How to achieve the goal

- Use deep learning for classification - Convolutional Neural Network (CNN).

- Python Tensorflow/Keras.

1.3 Project steps

These first three steps constitute the *Execution Phase* 1. The due date for Phase 1 is the 8th of June.

- Training Data:

    - Find first training data for beta testing.
    - Find better data for better/more accurate results.

- Programming Neural Network:

    - Detect faces.
    - Extract faces.
    - Recognize emotion - designing a first neural network.

- Get first results.
- Optimize CNN.

- Research:

  - How to optimize the neural network; find better choices for hidden layers and neurons.

The following step is the *Execution Phase* 2. The due date for Phase 2 is the 15th of June.

- Wrapping up:

  - Train final CNN with data.
  - Final test and results.
  - Write a "Read me" for the client

The final step does not include executions of the code. The due date is the 29th of June, giving a buffer time of two weeks for unpredicted tasks or problems to be solved.

- Closing:
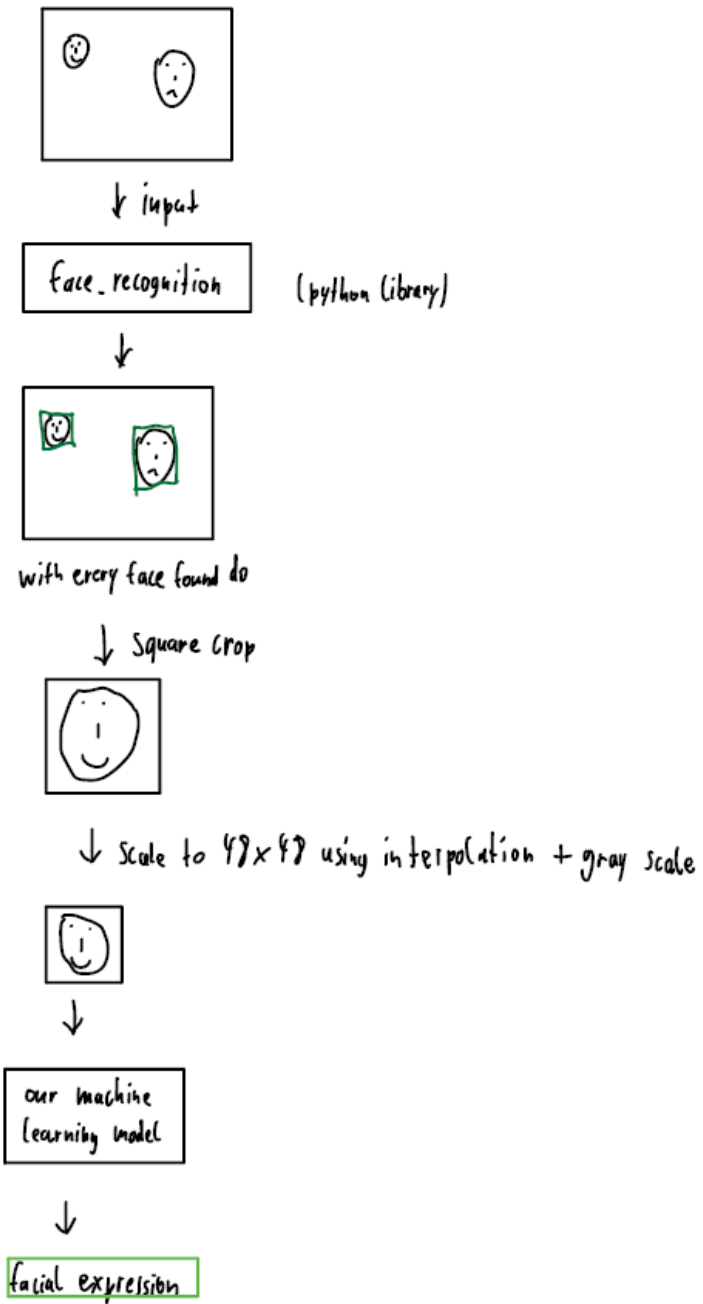
  - Prepare a presentation.

Figure 1: Project plan