Project Name: The "How's it going?" Hat
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Introduction

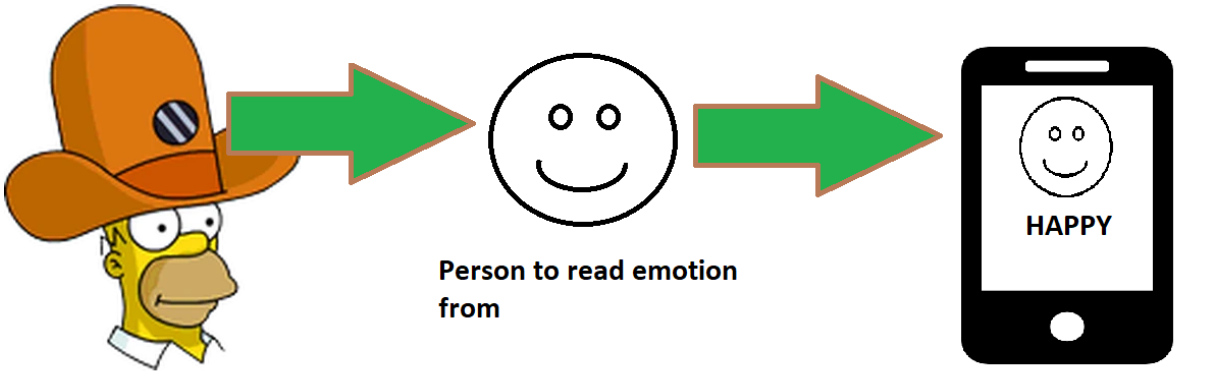
My partner is autistic and often has trouble interpreting emotion. The purpose of this project is to develop a device that can interpret emotion in real-time via a camera and communicate those emotions with the user. The device is aimed at users who have trouble recognising facial expressions.

Baseline:

- The device recognises two emotions, e.g., happy/sad, with a delay.
- Sends the emotion as text to the user via a web app.

Depending on time constraints:

- Communicate emotions to user via Bluetooth earphones.
- Be "discreetly" mounted in a hat.
- Recognise multiple emotions in real-time.
- Web app will show the emotion as an emoticon and in text.
- Use IoT platform such as ThingSpeak



Tools, Technologies, and Equipment

Hardware

- Processing: Raspberry Pi 4 Model B
- Sensor: Raspberry Pi v2.1 Camera

Programming

- Device: Windows 10 computer
- IDE: Visual Studio Code to remotely access Pi via SSH
- Language: Python

Emotion Recognition

- Face detection: OpenCV
- Emotion recognition: TensorFlow Lite

Communication from Pi to Web-App

- MQTT
- IoT Platform such as ThingSpeak

Project Repository

https://github.com/MartyRath/raspberry-pi-emotion-recognition