360 Degree Web Conference

Methodology

Fish-eye Image Streaming → De-warping → Face Detection → Interface Design

Audio Direction from DOA algorithm

PC converts virtual device to Skype ← IP camera recognised as a virtual device ← Respi upload video through HTTP format

1. Sound

ReSpeaker 4-mic array for Direction of Arrival Algorithm (DOA). Speaker directions is shown by small LED

The audio input is obtained using Tyless USB mic through a 3.5 jack port.

Innovation

First open source 360 degrees web conferencing camera system.

Costs

- $33
- $47
- $75
- $92
- $53

Legend:
- USB Mic
- 4-Mic Array
- Raspberry Pi
- Camera
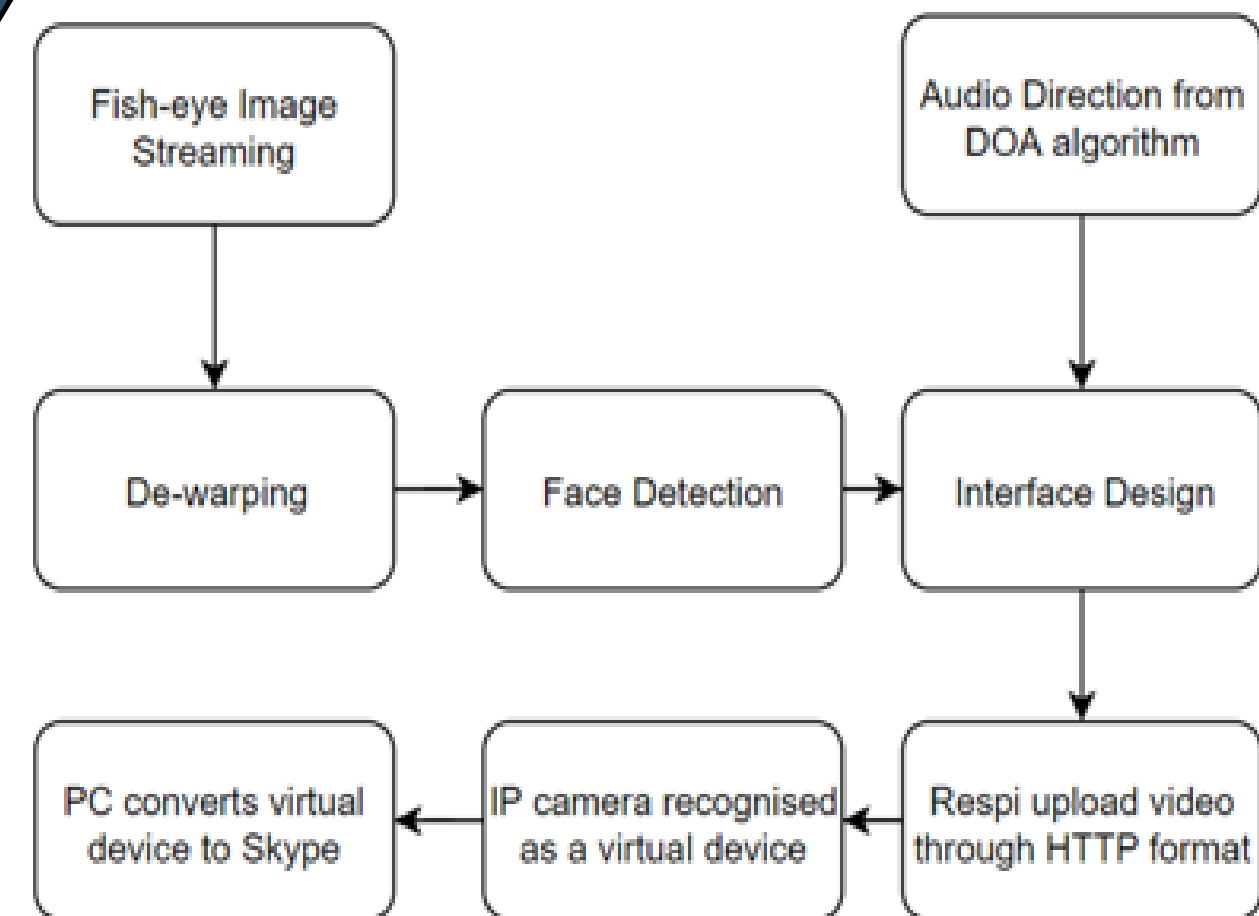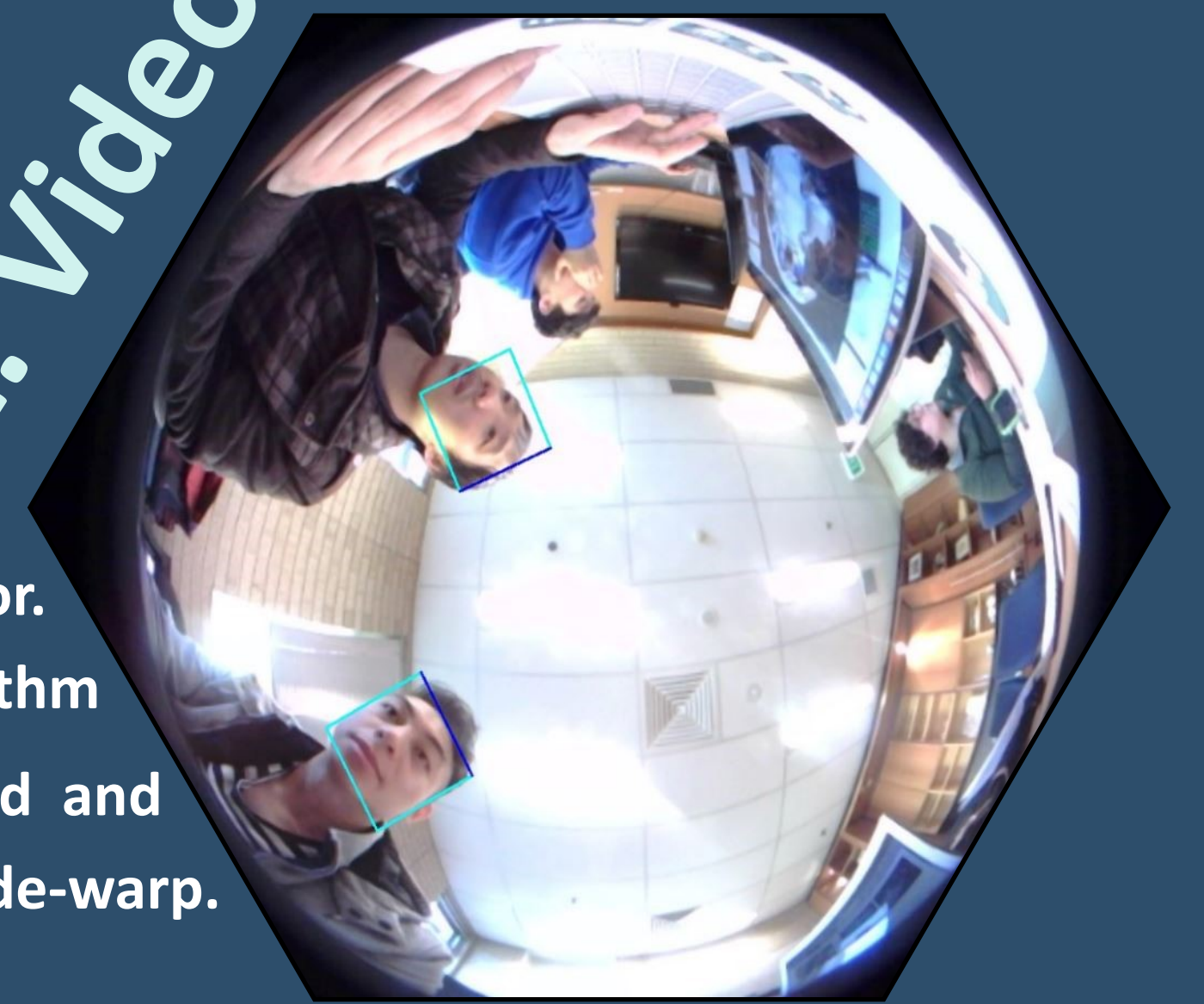- Leftover

2. Video

Fisheye input from the camera to the processor. Face detection algorithm is then executed and video feed de-warp.
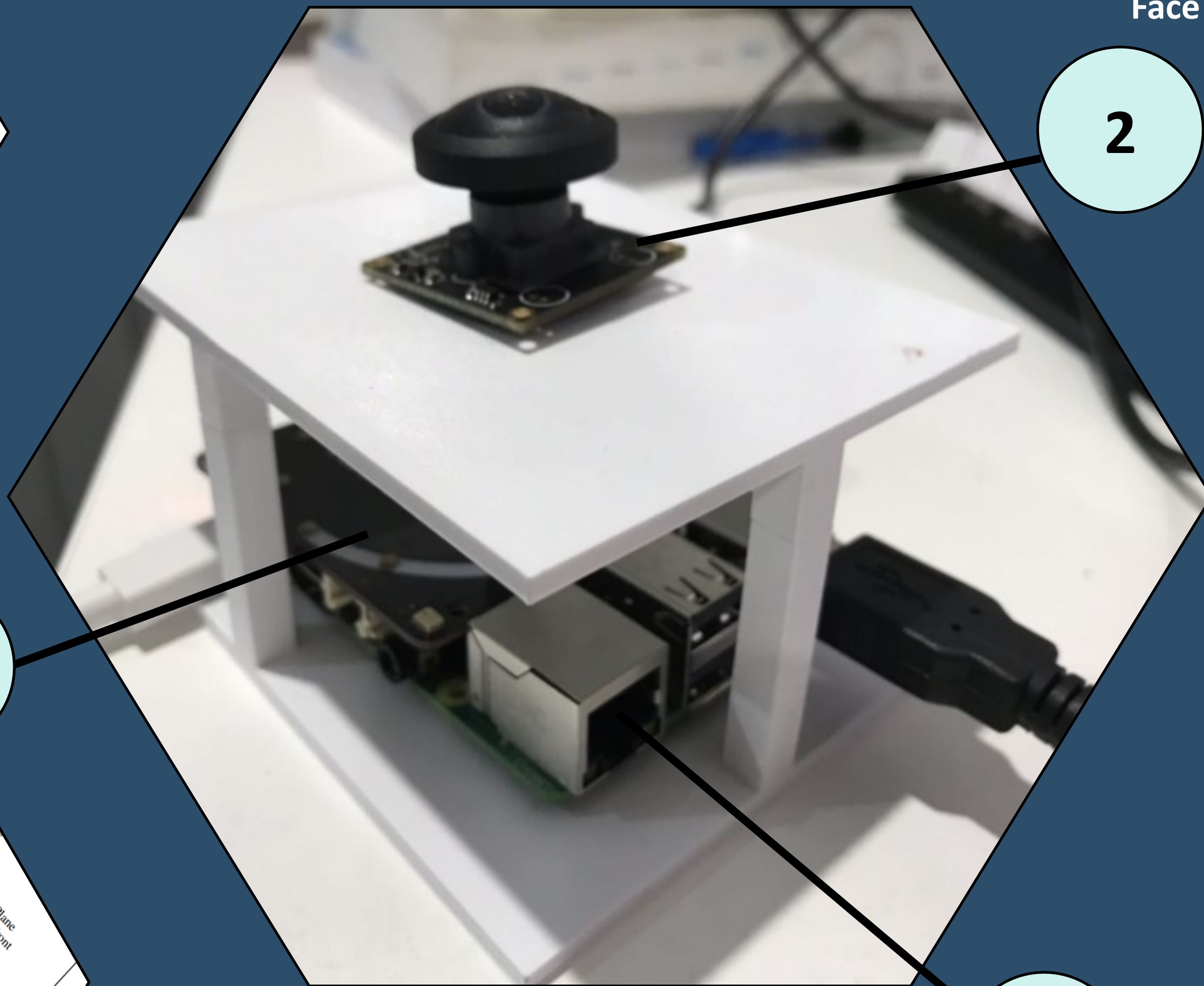
Face Detection Algorithm

Rotation-invariant face detector:
- Real-time but high computational requirement
- Can detect user at almost any angle

Cascade face detector:
- Real-time and low computational requirement
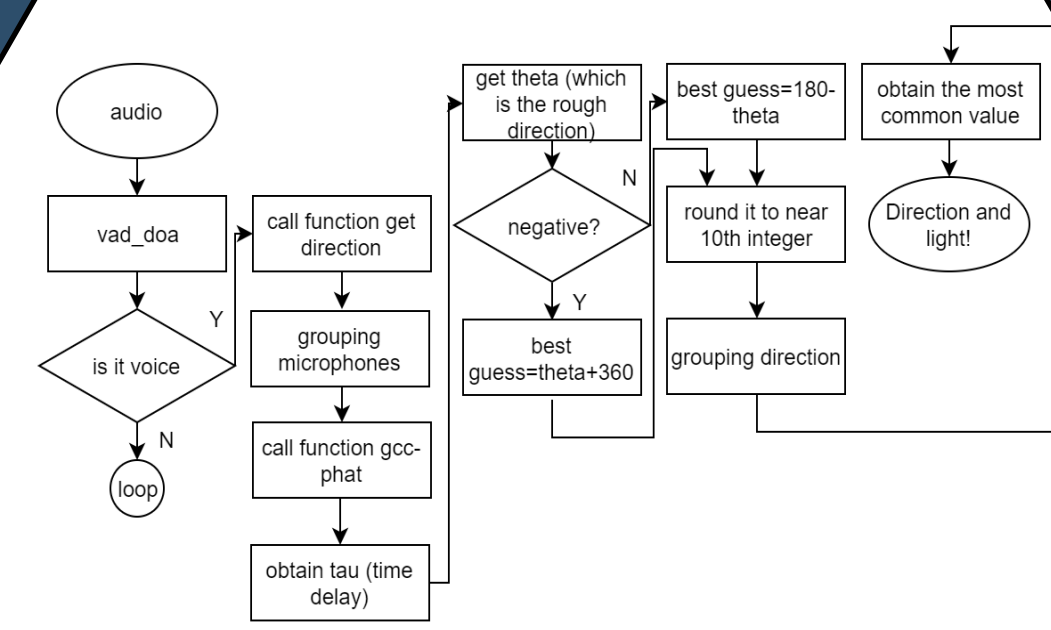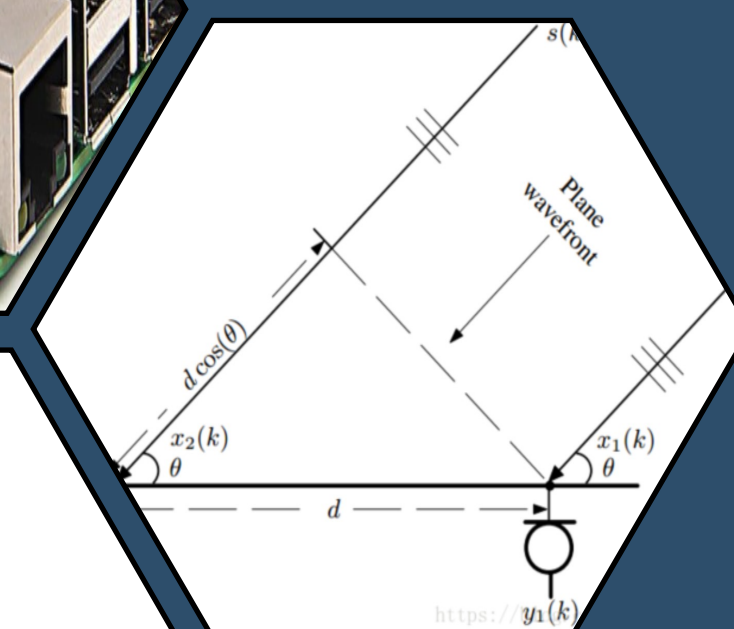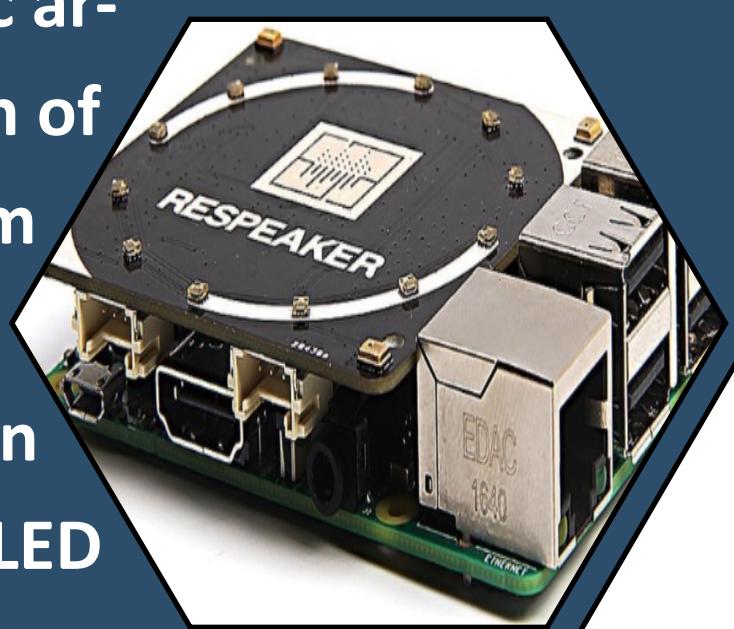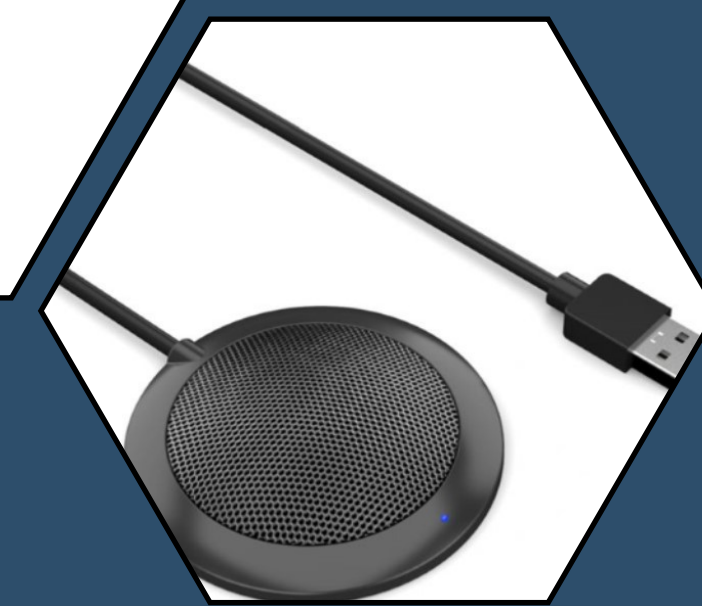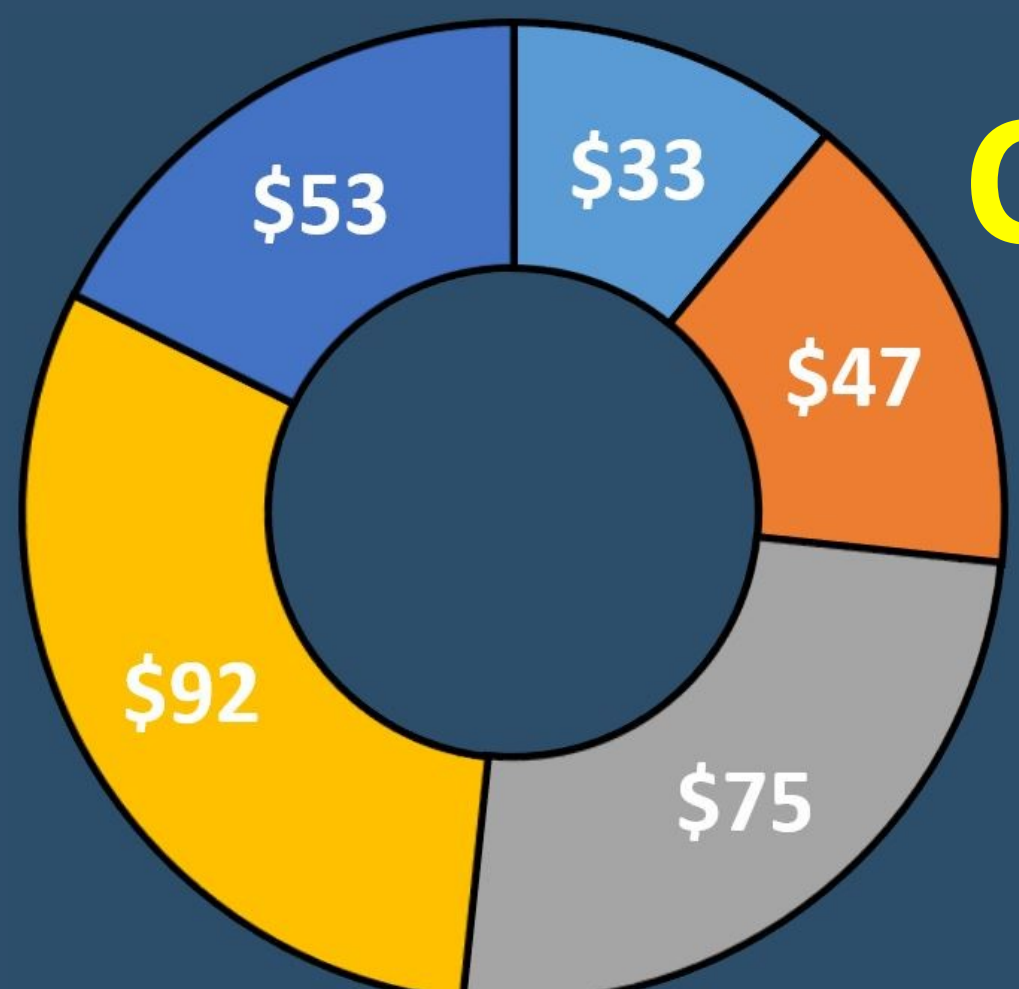- Require user image to be right angle

3. Output

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