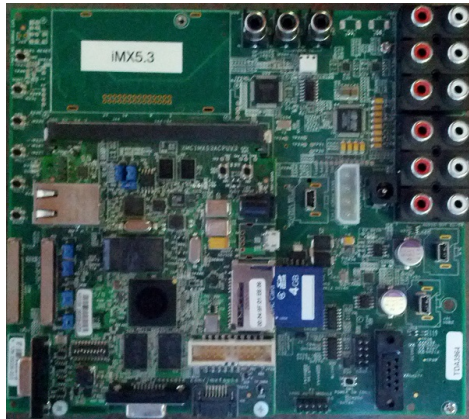


Technology

USB Webcam



ARM Board



Qt and OpenCV

```
QColor CameraView::getColor(int x, int y)
{
    int xt = x*(curframe.width()/width());
    int yt = y*(curframe.height()/height());
    curframe.map(QAbstractVideoBuffer::ReadOnly);
    QImage im(
        curframe.bits(), curframe.width(),
        curframe.bytesPerLine(), m_format);
    QColor toret(im.pixel(xt,yt));
    im.setPixel(xt,yt,qRgb(255,0,0));
    curframe.unmap();
    update();
    return toret;
}
```

The Team

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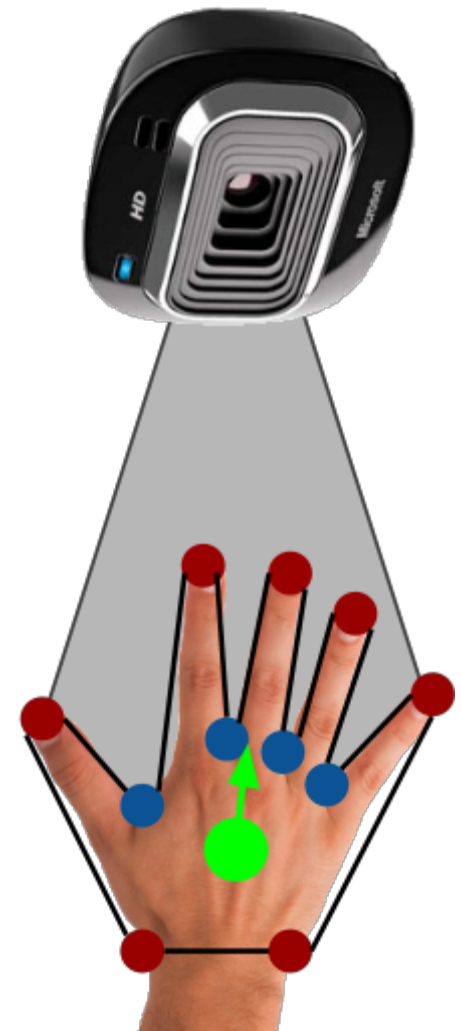
Brandon Jacklyn

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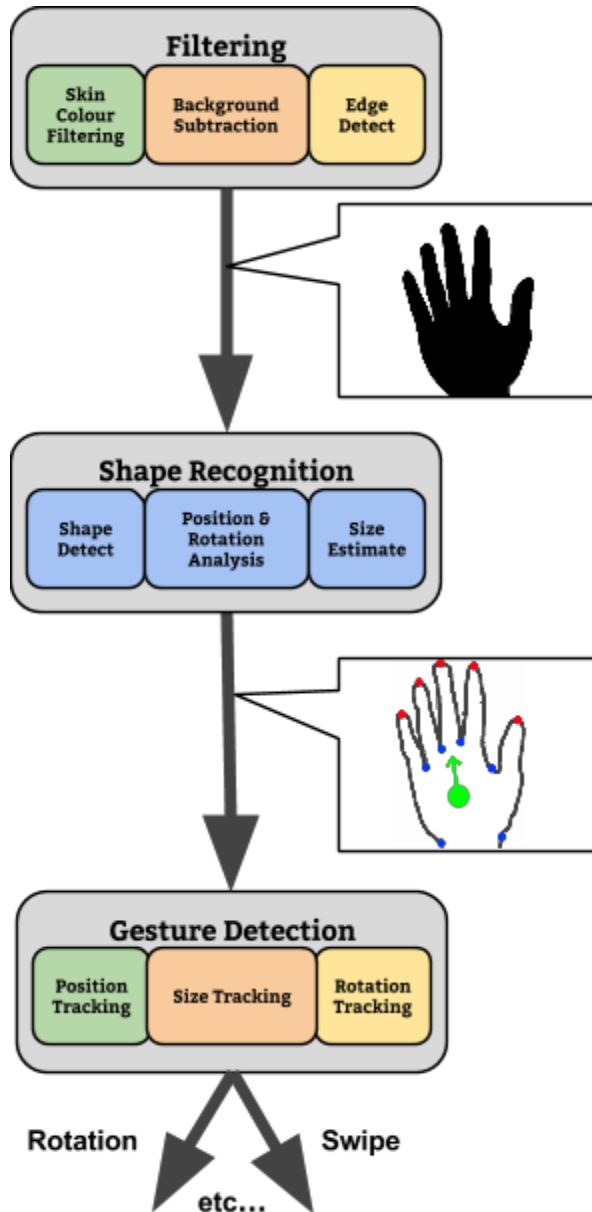
MOTION Inc

Hand Gesture Recognition



How it Works

Our product aims to make any USB connected webcam capable of recognizing basic hand-gestures.



Filtering Techniques

A combination of skin colour filtering, background subtraction, and edge detection are used to create a black and white image - black being where the hand is.

Shape Recognition

The system scans the image for edges and finds the largest object. The object is analyzed to find points where direction changes abruptly such as fingertips and the spaces between fingers.

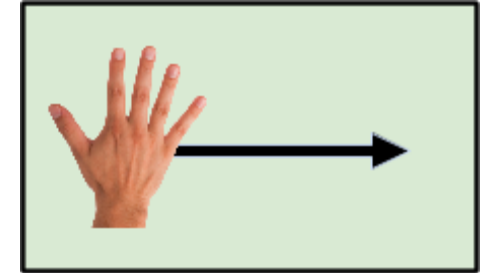
Gesture Detection

Models of the object's motion, orientation, and size are built over time. Holding still in the middle of the screen begins rotation and panning mode; starting on the right and moving to the left is recognized as a swipe.

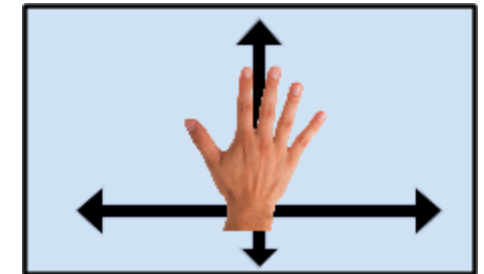


Hand Gestures

Swiping



Panning



Rotating



Zooming

