Smart Display

10th September 2019

OVERVIEW

A smart display senses people in its vicinity, reacting to movement of multiple objects in two dimensions. When an event of interest occurs, the displayed content changes to reflect this.

GOALS

1. Detect people moving around the display.
2. Reflect changes in the environment in the display.

SPECIFICATIONS

Use the supplied Si1153 optical sensor with added lens and Raspberry Pi to detect basic proximity of people over long and short range. Additionally, recognize gestures at short range. Employ the ambient light sensing functionality to compensate for lighting conditions both indoors and outdoors. Change displayed content based on observations from the sensor.

MILESTONES

Proximity Detection

The sensor correctly identifies that objects enter and leave its vicinity at different ranges.

Gesture Recognition

The sensor correctly identifies gestures made in front of it, such as swiping left or right.

Linux Device Driver

Make a modern Linux device driver for the Si1153 adhering to relevant coding standards for the IIO subsystem so that it may be accepted and integrated with the mainline Linux kernel.