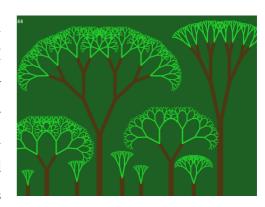David Pape

User Interface Engineering PS

15. June 2020

Processing assignment
A graphical water level monitor

My project connects Processing with an Arduino and moisture sensors. With Processing, I have created a graphical display which shows how well one's plants are watered. The display communicates this information using a forest of trees which flourish if the sensor detects good water levels and shrink if little water is detected. The display updates smoothly in real time which is made possible by the Arduino sending new moisture data 20 times per second. To avoid jittery plants caused by fluctuations in the data, the 10 most recent datapoints are stored and averaged in Processing.

The original idea included multiple types of plants, each corresponding to an actual plant with a moisture sensor, such that the display can show information about multiple plants clearly. Each of the plants on the display was supposed to be similar to the real plant it represents, such that the user can easily see which plants need watering and which don't. By hooking each real plant up to one virtual plant, their different watering requirements can also be respected easily.

Unfortunately, creating virtual models of plants that can clearly represent water levels turned out to be a serious task, and so I ended up adapting Dan Shiffman's tree example for this purpose. It was still possible to create somewhat differently looking plants by controlling separately for each tree how much it opens up as the water level rises. For example, one of the largest two trees will only open up half as much as the other one, which imitates at least some degree of biodiversity.