

Problem 1: Take care that lights are turned off after students leave

UBB caretaker (UBB_ct) takes care that the student turn the lights off when he leaves.

UBB_ct asks S to turn the lights off, S will finally turn them on after he finished his work and is ready to leave. UBB_ct keeps reminding S to turn the lights off.

S and UBB_ct both in "waiting" state. UBB_ct signals S about turning off the lights. S goes to "answering" state. If S is done with his work, ready to leave, he goes to "closing off" state, otherwise, if he is not finished yet, he goes to "waiting" state.

Actors: Student, UBB caretaker (UBB_ct)

Signals:

UBB_ct to Student (turnLightsOff)

Student to UBB_ct (readyToLeave/notFinishedYet)

Problem 2: Automated Irrigation System (Smart Garden) with Soil Moisture Sensor

The SMS and the CTRL are in "waiting" state. The SMS reads the amount of water in the soil (humidity) and sends it to the CTRL, then gets into "waitingAnswer" state. The CTRL receives the measurement from the SMS and gets into "maintaining" state. Here, the value for the humidity is compared to the threshold (configurable).

- humidity \geq threshold: the CTRL goes to "complete" and signals the SMS that no irrigation was needed. The SMS also goes to "complete"
- humidity < threshold
 - o irrigation takes place, the humidity indicator is increased and the CTRL goes to "waiting", together with the SMS, which receives a signal.

Actors: Soil Moisture System (SMS), Switch Controller (CTRL), Timer (T)

Signals:

SMS to CTRL (performHumidityCheck, humidity)

CTRL to SMS (wasIrrigationNeeded – true/false)