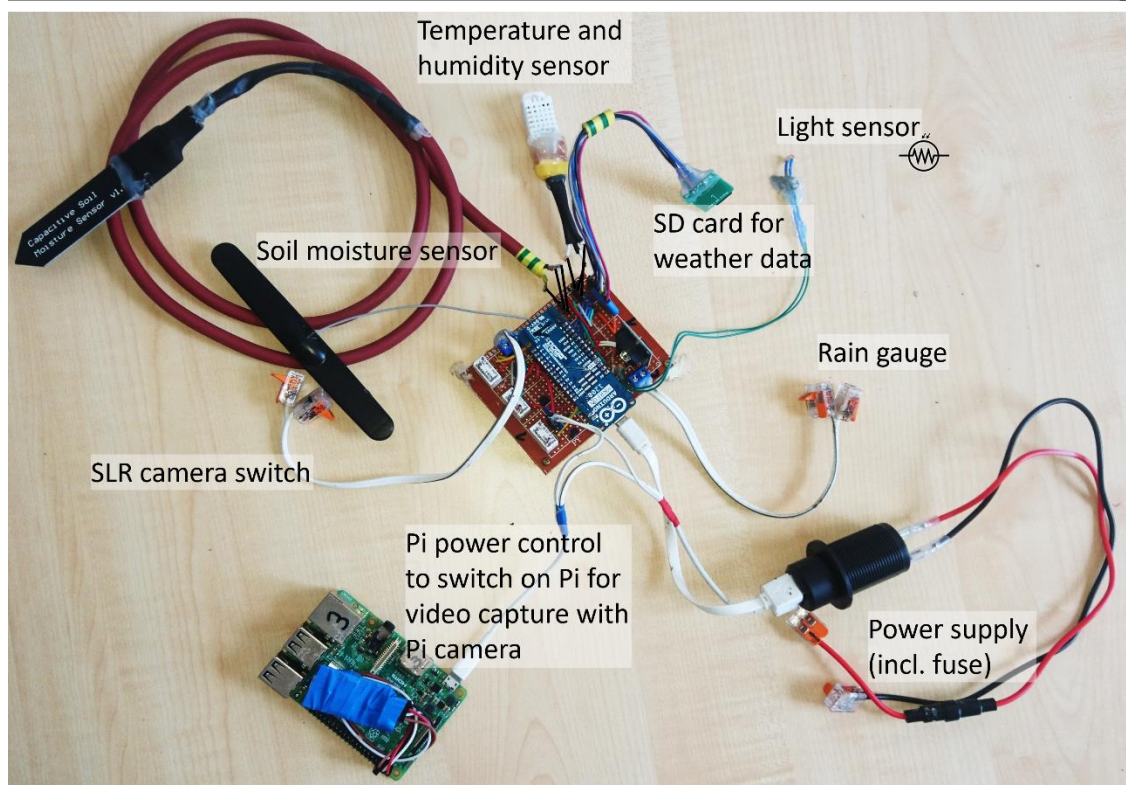
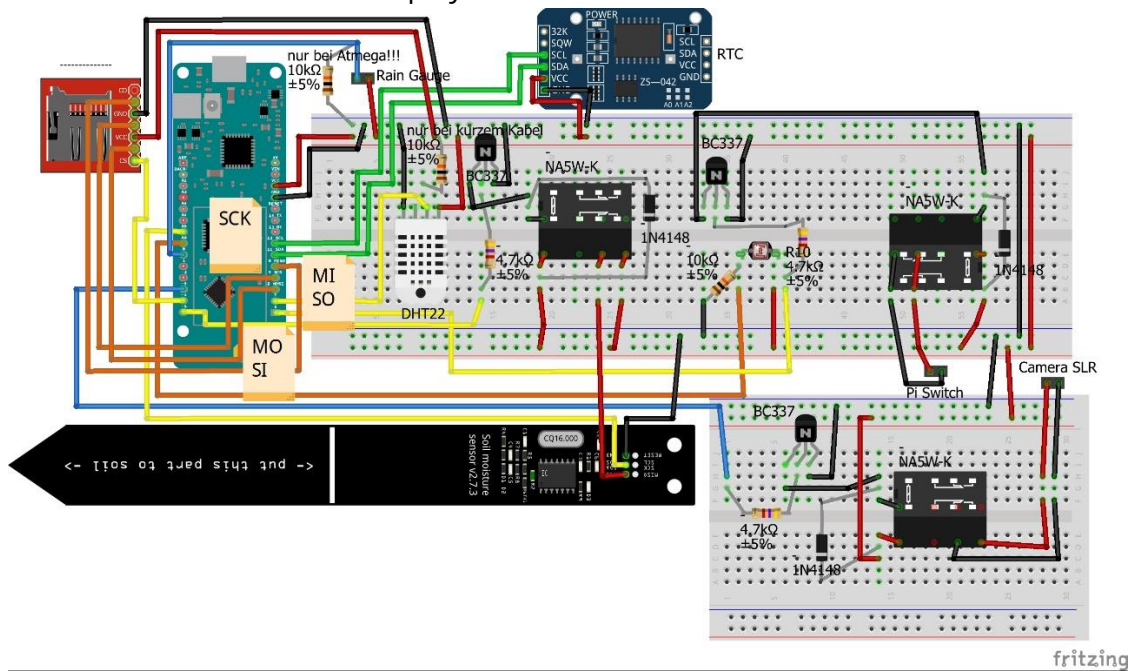


Sensors used (mandatory, *elective*):

Single SLR camera control	Main station	
Arduino Pro Mini	Arduino MKR FOX 1200	<i>Raspberry Pi</i>
Optocoupler PC817	Relay NA5W-K (one for each SLR trigger, moisture, weather)	<i>Raspberry Pi camera</i>
	Transistors BC337 (one for each relay)	<i>Thermal camera TE-Q1</i>
	<i>Light resistor</i>	
	<i>Capacitive Soil Moisture Sensor v1.2</i>	
	<i>DHT22</i>	
RTC DS3231		
wires, resistors, diodes		

Preparation Arduino main station:

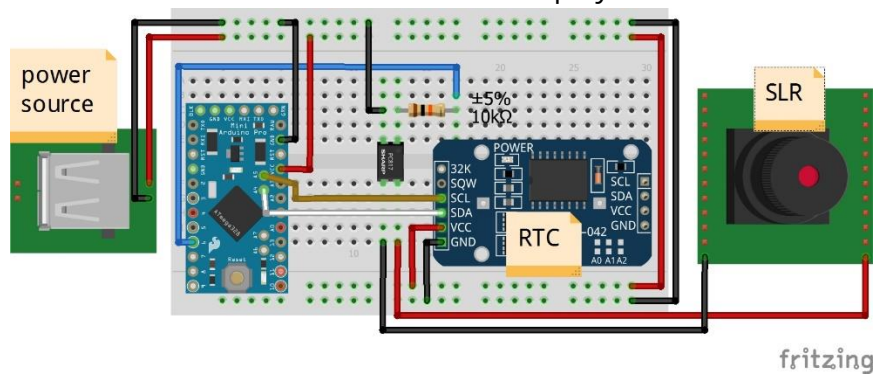
➔ Solder/Pin connections as displayed:



➔ Transfer "mkr\_weather\_and\_camera.ino" to Arduino MKR FOX 1200

## Preparation Arduino Single Camera Control:

➔ Solder/Pin connections to devices as displayed:



➔ Transfer "rtc\_cam\_control\_daily.ino" to Arduino Pro Mini

### Preparation Raspberry Pi (*elective*):

- ➔ Download provided captureVideoRain.zip and unpack
- ➔ Install image on empty SD card (size of at least 16GB)
- ➔ Insert SD card into Raspberry Pi
- ➔ Before field deployment check the following:
  - Check settings of schedules to capture data in the crontab → follow the instructions in "instruction\_setup\_PiSchedules.txt" (you need to connect to the Pi first, e.g., using a monitor and a keyboard)
  - Set time of RTC → first check current time of RTC in Terminal with "sudo hwclock -D -r" → then, check time of Pi with command "date" in Terminal and if it is wrong set time of RPi ("set date -r 'YYYY-MM-DD HH:MM'") → then type "sudo hwclock -w" to update the RTC time with the RPi time



connections RTC to Pins of RPi:

- ➔ If you want to setup your own py from scratch you can use the following python scripts to capture the data correspondingly:  
*video\_capture\_rain.py* and *camera\_functions.py*