SUPPLEMENTARY MATERIAL

SMART-LAMP: A smartphone-operated handheld device for real-time colorimetric point-of-care diagnosis of infectious diseases via loop-mediated isothermal amplification

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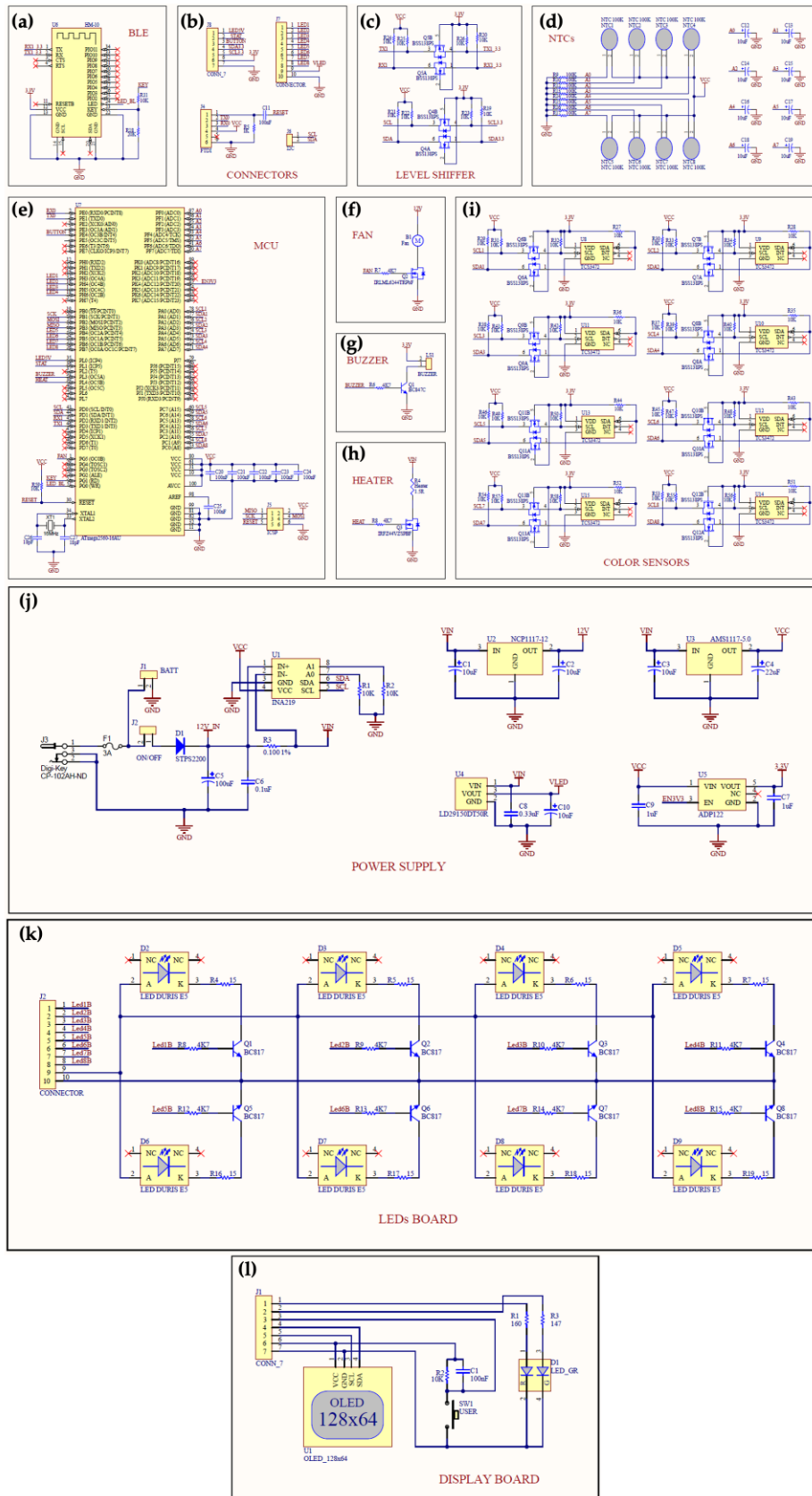
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Figure S1. Single-line electronic circuit sketches of the different modules of the SMART-LAMP: **(a)** Bluetooth Low Energy Circuit (BLE); **(b)** Connectors; **(c)** Level Shiffer; **(d)** NTC Thermistors; **(e)** Microcontroller Unit (MCU); **(f)** Fan; **(g)** Buzzer; **(h)** Heater; **(i)** Color sensors; **(j)** Power supply; **(k)** LEDs Board; **(i)** Display Board.

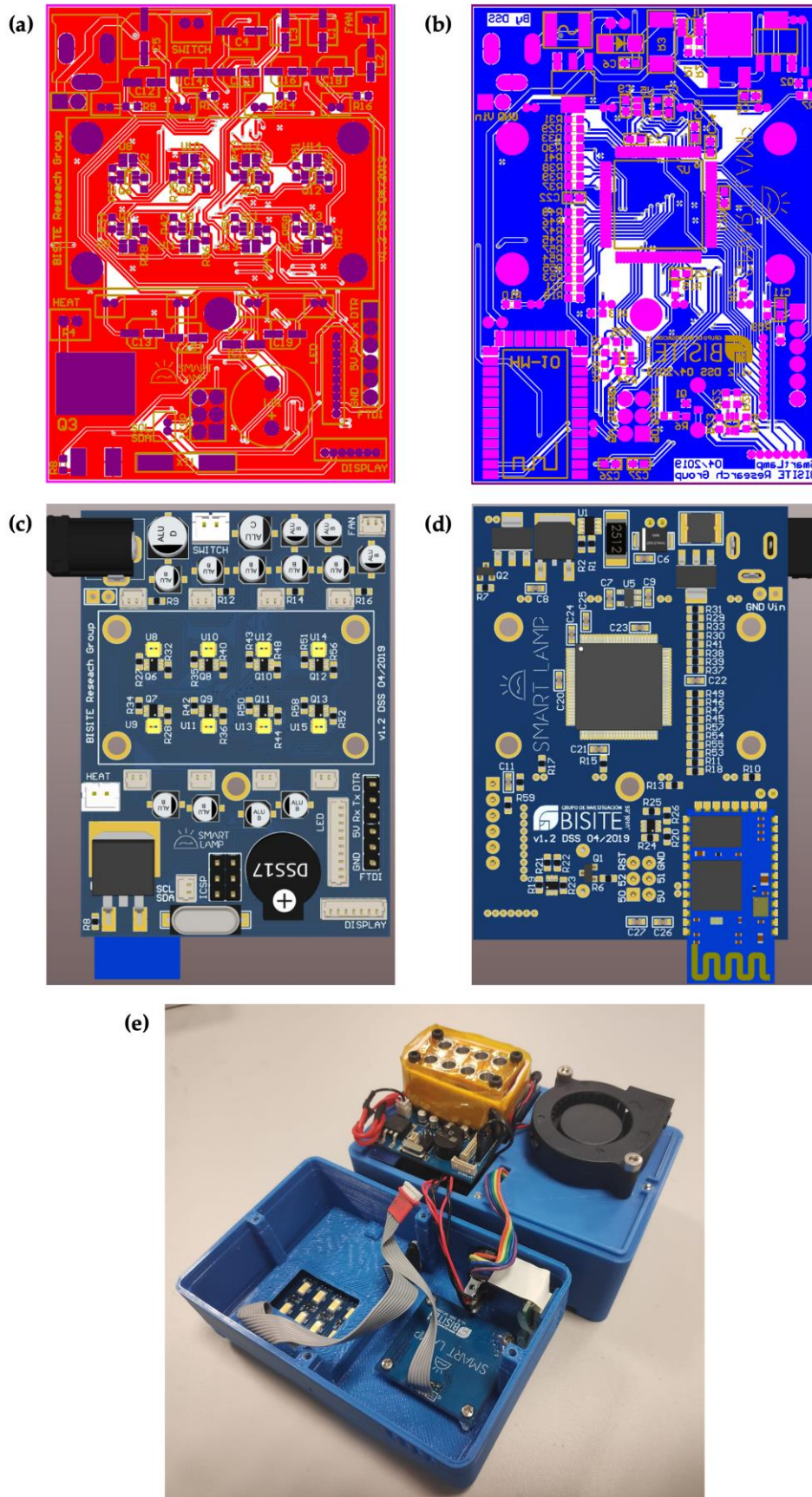**Figure S2.** Printed Circuit Board (PCB) of SMART-LAMP: **(a)** Upper face of the PCB; **(b)** Bottom face of the PCB; **(c)** 3D render of the upper face of the PCB; **(d)** 3D render of the bottom face of the PCB; **(e)** Interior of the SMART-LAMP device.
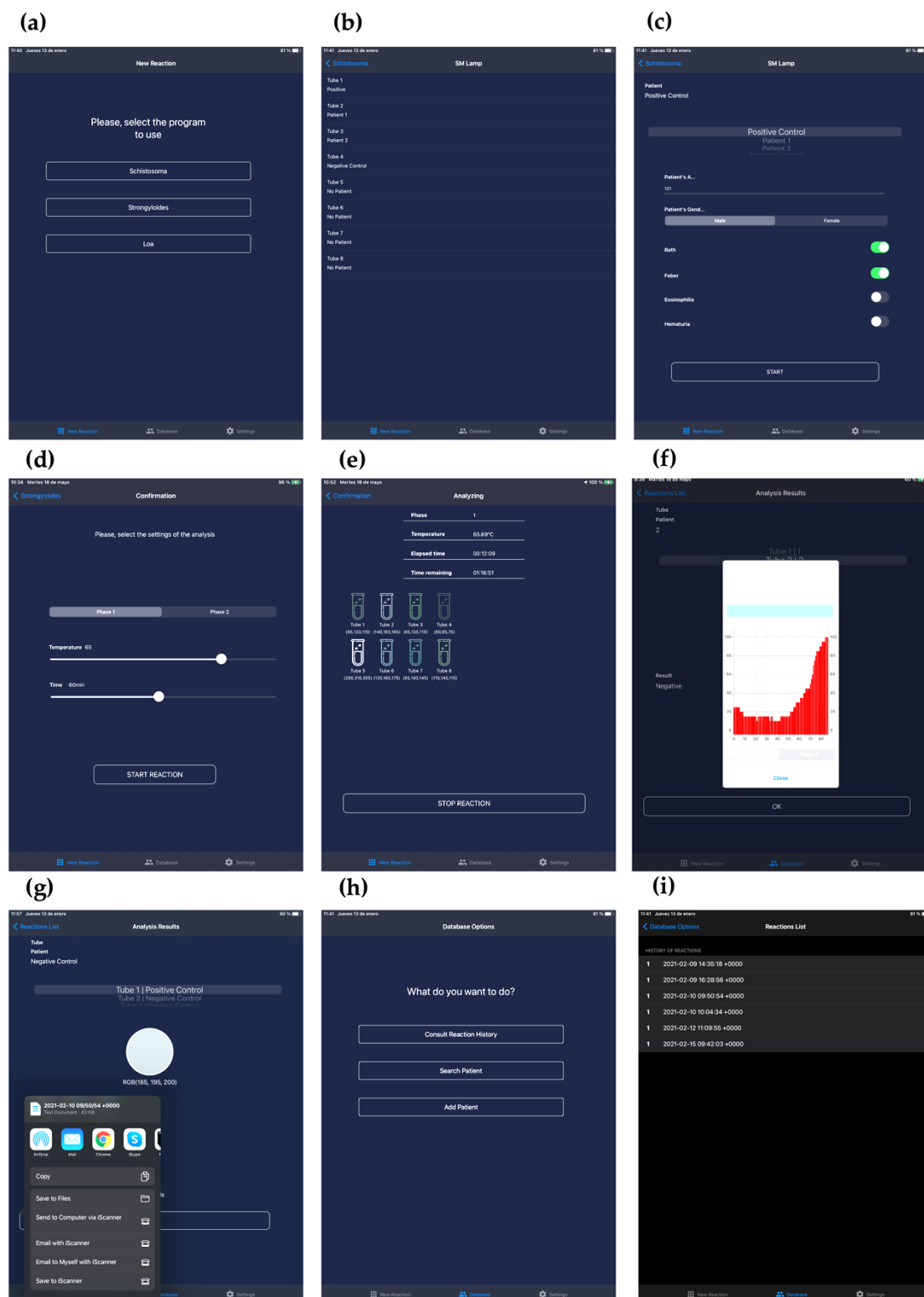
Figure S3. SMART-LAMP app screen workflow: **(a)** Initial screen for the selection of the scheduled reaction conditions; **(b)** Selection of the samples to be analyzed and the position of each sample in the device; **(c)** Screen to add relevant information that has been acquired during sample collection; **(d)** Modification of reaction conditions in terms of temperature and time; **(e)** Real-time visualization of the reaction progress; **(f)** Real-time results for one sample, visualized at the end of the reaction; **(g)** .csv file can be exported at the end of the reaction. (h) Screen to access patient database and previous reactions; **(i)** Past reactions database.
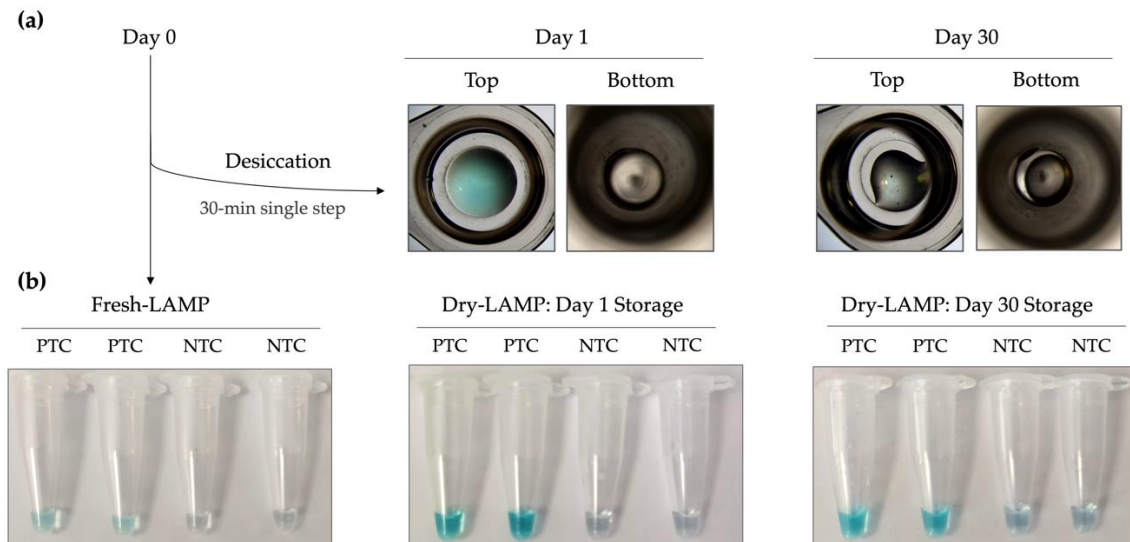
Figure S4. Comparison of fresh-LAMP and dry-LAMP results using malachite green and the effect of storage: **(a)** A view under a magnifying glass of the top (left) and bottom (right) partial mix pellets at day 1 and 30 post-desiccation; **(b)** Colorimetric change of 0.008% w/v MG between positive (PTC) and negative (NTC) results for a LAMP assay targeting *Schistosoma haematobium* as example, using fresh-LAMP and dry-LAMP at day 1 and 30 post-desiccation.

Table S1. List of components of SMART-LAMP.

Modules	Component	Quantity
Main Board	ATmega2560-16AU MCU	1
	HM-10 Bluetooth module	1
	TCS3472 RGB Sensor	8
	NTC Resistor 100K	2
	SMD Resistor 100K 0603	2
	Electrolytic Capacitor 10uF 16V	6
	INA219 Sensor	1
	SMD Resistor 0,1 ohms 1% 2512	1
	Electrolytic Capacitor 100uF 16V	1
	Regulator NCP1117-12	1
	Regulator AMS1117-5.0	1
	Regulator LD29150DT50R	1
	Regulator ADP122	1
	Mosfet BSS138PS	10
	Mosfet IRLML6244TRPbF	1
	Mosfet IRFZ44VZ	1
	BC847C Transistor	1
	SMD Resistor 10K 0603	44
	Ceramic Capacitor 100nF 0603	8
	Ceramic Capacitor 1uF 0603	2
	16MHz crystal	1
	Ceramic Capacitor 18 pF 0603	2
	SMD Resistor 4K7 0603	3
	Electrolytic Capacitor 22uF 16V	1
	Ceramic Capacitor 330nF 0603	1
	3A fuse	1
	STPS2200 diode	1
	PicoBlade PCB Header 10 Circuits	1
	PicoBlade PCB Header 7 Circuits	1
	PicoBlade Receptacle Crimp Housing 10 Circuits	1
	PicoBlade Receptacle Crimp Housing 7 Circuits	1
	PicoBlade Female Crimp Terminal	19
	Active buzzer	1
	6x1 male pin header	1
	3x2 male pin header	1
	PicoBlade PCB Header 2 Circuits	1
	JTS-PHX 2-pin connector female	2
	JTS-PHX 2-pin connector male	2
	12V Radial Fan	1
	FTDI module	1
	Conector DC Hembra	1
	Power Switch	1

Display Board	OLED Display 128x64 I2C	1
	SMD Button	1
	Ceramic Capacitor 100nF 0603	1
	SMD Resistor 10K 0603	1
	SMD Resistor 147 ohms 0603	1
	SMD Resistor 160 ohms 0603	1
	Bicolor SMD LED	1
	PicoBlade Female Crimp Terminal	7
	PicoBlade PCB Header 7 Circuits	1
	PicoBlade Receptacle Crimp Housing 7 Circuits	1
LED Board	LED Duris E5 SMD	8
	BC817 Transistor	8
	SMD Resistor 4K7 0603	8
	SMD Resistor 15 ohms 0603	8
	PicoBlade Female Crimp Terminal	10
	PicoBlade PCB Header 10 Circuits	1
	PicoBlade Receptacle Crimp Housing 10 Circuits	1
Heater	Aluminum block	1
	Polyamide heaters	2
	Thermal insulation cm2	36
Case	PLA gr	416
	Magnets	6
	Screws	20