

**University of Cape Town**  
**Engineers Without Borders Society**  
**Electronics Team**  
**Components List for Prototype v01**  
**21 September 2022**

This document shows updated lists of the components that are required to build a prototype for the iSondlo Garden Project. The electronics team was divided into the Power and Solar sub-team and the Control and Monitoring sub-team. As such, two tables are included, one for each team. These tables also show the vendors from which the components will be purchased and the price of each component on the date that the document was compiled. Components that can be obtained from the university show a dash for the cost. The total cost includes the shipping cost for components that need to be purchased online.

**Table I: Components required by the Control and Monitoring Team for the construction of the prototype**

Component	Specifications	Quantity	Vendor	Cost [in Rands]
Arduino Uno	Arduino UNO R3 develop. module board & lead	1	<a href="#">Mantech</a>	736.33
Arduino GSM GPRS Shield	SIM900 Quad Band GSM GPRS Shield, Embedded TCP/UDP	1	<a href="#">Mantech</a>	773.30
Bucket	5l bucket	1	-	20.00
Clear Set Epoxy Glue	Alcolin Epoxy Liquid Rapid Set Clear 2 x 20 ml	2	<a href="#">Makro</a>	98.00
Diode	Diode rectifier axial 50v 1a	2	<a href="#">Mantech</a>	0.57
Garden Stake/Skewer	Standard irrigation stake 200 mm	1	-	20.00
Heat Gun/Hairdryer	Black & Decker Heat Gun (1750W)	1	<a href="#">Makro</a>	599.00
Heat-shrink	¼-inch, ½-inch,	1	<a href="#">Makro</a>	130.00

Tubing	¾-inch adhesive lined Polyolefin			
Humidity Sensor	Humidity sensor board / module [GHITRON]	1	<a href="#">Mantech</a>	116.97
LDRs	LDR 3x4 RL=10K RD=1M MEC	1	<a href="#">Mantech</a>	19.00
Micro SD Card Module	Arduino Micro SD Card Reader Compatible with Arduino [KEYESTUDIO]	1	<a href="#">Mantech</a>	35.16
Nail Polish	For exposed circuits	1	-	20.00
Relay Switch (min rating 10V, 2A, 20W)	5V One 1 Channel Relay Module Board Shield with optocoupler Support High and Low Level Trigger.	1	<a href="#">Mantech</a>	22.54
Resistors		1	-	-
Sim Card + Data (500 MB)	Vodacom SIM Card, 500MB x 3 months	1	Vodacom	133.00
Soil Moisture Sensor	Capacitive type moisture sensor	2	<a href="#">Mantech</a>	32.13
Solenoid Valve	3/4inch 12VDC SOLENOID VALVE, MAINS PRESSURE OPERA [EIE]	1	<a href="#">Mantech</a>	149.81
Tubing	2 m, ½-inch Libra marketing PT011 Tubing	1	<a href="#">Makro</a>	104.50
Transistor	2N222A NPN	1	-	-

Waterproof Temperature Sensor	Temperature Sensor - DS18B20 - 1M	1	<a href="#">Mantech</a>	49.00
			<b>Total</b>	<b>3059.31</b>

**Table II: Components required by the Power and Solar sub-team for the construction of the prototype**

Component	Specifications	Quantity	Vendor	Cost [in Rands]
PV Module	CNBM 6M-55 55W Mono Solar Panel, max $V_{mp}$ =18.6V, max $I_{mp}$ =2.96 A.	1	<a href="#">Solar-man</a>	2000.00
Battery	Solar Gel 12V Battery 33AH Deep Cycle	1	<a href="#">Solar-man</a>	1289.00
Cables*	-	-	-	-
Charge Controller	10A, 133x70x35mm	1	<a href="#">Solar-man</a>	289.00
Mounting System*	Ballast mount	-	-	-
			<b>Total*</b>	<b>3578</b>