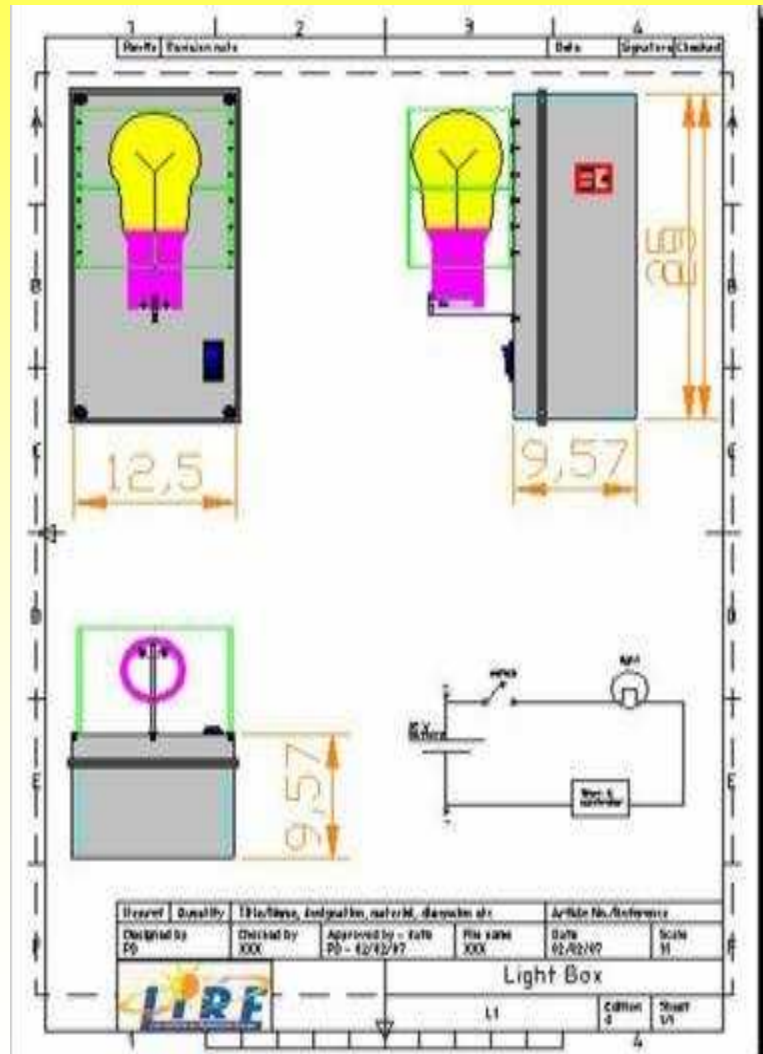


Solar Lanterns





Requirements

The lamp is to be inherently intuitive to use

One on off switch allows the user to get light hours over several days. 10 to 20 hours of light depending on battery and globe selected

Simple to repair

Simple construction and readily available familiar components



Requirements

Easy to recharge

Simple input pug with the complexity residing in a single central state of the art multiple outlet solar recharge station.



Fully automated and operated by local technicians .



Requirements

Durable

Practical

Local



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allowing it
ght .

Need to be local

Manufactured/Assembled on site by local staff

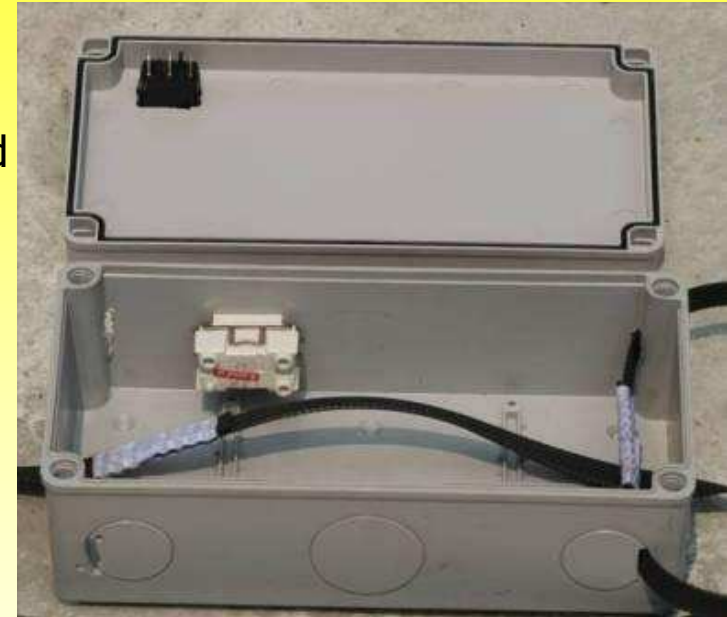
As much as possible locally available materials where utilized ensuring spare components are able to be sourced reliably and mainly to support of local economy



Components

Box

A light weight durable polymer electric installation box was selected as the casing and housing for the battery, lamp and circuitry



Handels and fixation straps

Durable polymer straps are attached to the lamp for ease of transport and allowing it to be used as portable lantern

The box housing allows the lamp to be set on a table or desk for specific proximate lighting. (Reading and handcraft work) .

The straps also allow for the lamp to be mounted upside-down as ceiling lamp for the most effective light use in illuminating a room.



Components

Box

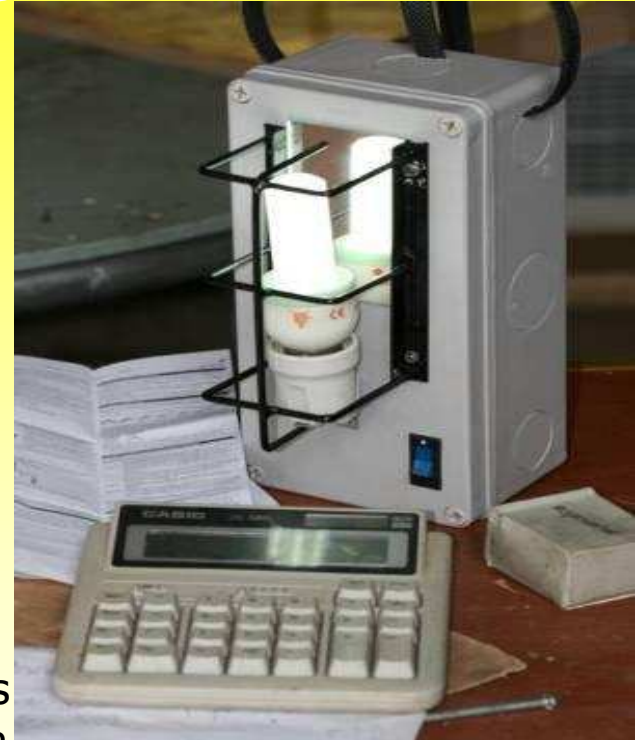
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Components

Battery

A top end gel lead acid gel battery has been selected for the lamps. If properly maintained through periodic recharging and prevention of deep cycle discharge as in the use of a timer cut off circuit the battery has an expected life cycle of 5 years. This life span is at the front end of technological limits for cost effective rechargeable battery units.



Components

Switch

A standard robust 12 volt polymer dip switch



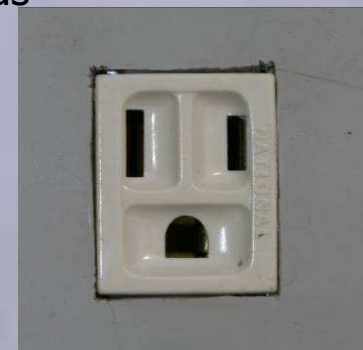
Light Fixture

A locally available standard porcelain light fixture is fixed to the box with a metal mounting bracket



Recharging plug

The battery terminals are connected to a recharging input connector. A three terminal north-American electrical socket was selected for its electrical safety, simplicity and durability characteristics. This socket type differs from the local electrical sockets commonly used and thus offers an amount of tamper resistance.

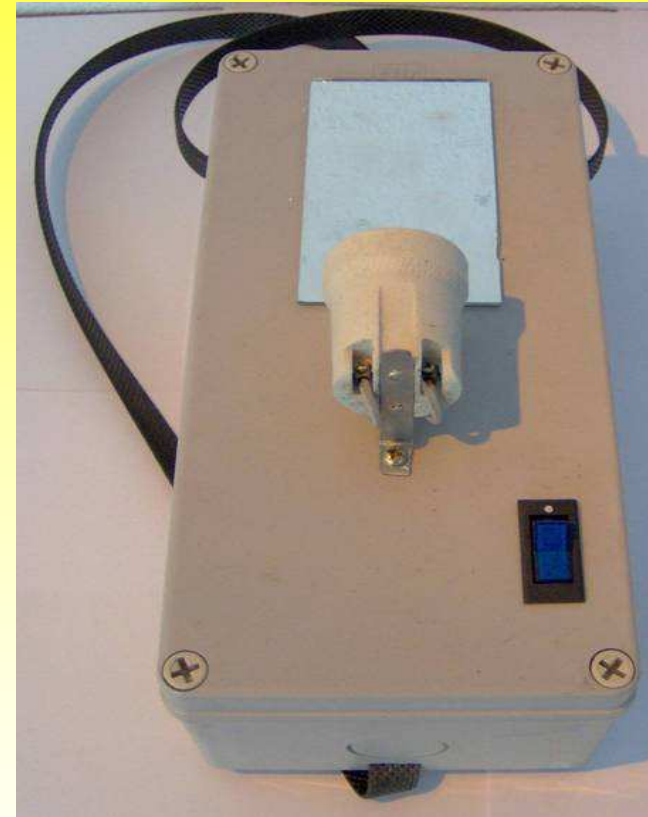




Components

Reflector & Bracket

A reflector is fixed behind the globe to direct the emitted light in a useable and desired direction



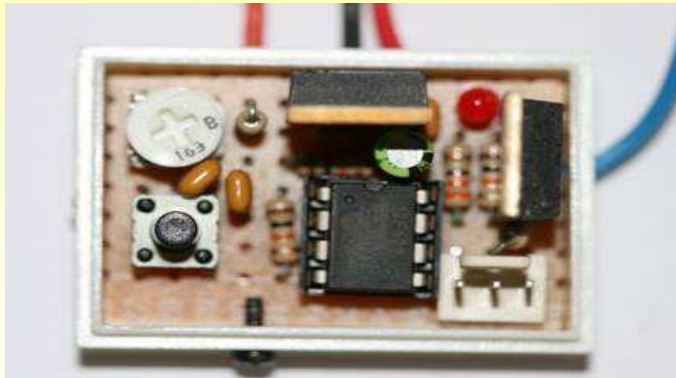
A metal lattice frame is attached to the housing box to offer mechanical protection to the reflector, light fixture and light globe.



Components

Light Globe

A high efficiency long lasting low power bright light globe was selected that would permit for the maximum battery life and negligible heat emission. The shock resistant globe is rated for 10 000 hours of operation. This globe was selected in place of LED as it emits a preferred diffused light and offers a higher LUX output while remaining low and efficient in power consumption.



Timer

A low power consumption timer was necessary to allow for maximal light hours per battery charge. The timer circuit's function is to protect the battery from deep discharge (over draining) ensuring maximal battery life.

