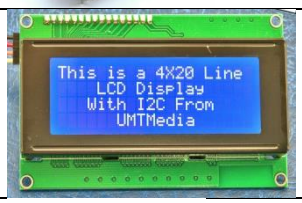
Arduino Advanced Shutter Timer Parts List

This is the list of components and tools I used.

Qty	Image	Item	Comment
1		Nano Terminal Adapter for the Arduino Nano V3.0 AVR ATMEGA328P-AU Module Board	Optional but makes connections easier. Not required really if you use an Uno
1		Mini USB (Arduino Nano - Compatible) V3.0 ATmega328P 5V 16MHz	Could use an Uno if preferred. Nano with pins if using Terminal Adaptor.
1		With IIC/I2C 2004 20X4 Character LCD Module Display Blue for Arduino	Be sure to buy with IIC
1		KY-008 650nm Laser Sensor Module 6mm 5V 5mW Red Laser Dot Diode Copper Head	WARNING use with caution Laser Light can permanently damage your eyesight
1		Laser Receiver Sensor Module non-modulator Tube Pi Arduino Pic Lazer	
1		Heavy Duty Toggle Switch / Flick 12V ON/OFF DPDT	
1		Micro SD Storage Board TF Card Memory Shield Module SPI For Arduino	
1		SanDisk Ultra Micro SD Card Class 10 SDXC Memory	Any storage size in GB will do eg 32GB Any make to fit Storage board
		Dupont Jump Wire M-F M-M F-F Jumper Breadboard Cable Lead For Arduino UK	You need a selection you will end up chopping some up too.
1		Resistor	
1m		22mm Copper Pipe	About 1 meter cut into approx. 2x 30cm and 2x 15cm to suit your needs
4		90degree 22mm solder joints	Could use compression

			joints – easier to adjust
1		T solder joint 22mm	Could use compression joint
4		Plastic 22mm pipe clips	
60cm		4cmx2cm planned timber	In 4 15cm lengths
1m		Cat 5 cable or similar	In two for connecting laser , sensor and as stripped wire for misc connections
6		Approx. 2.5cm tapping screws	
		Araldite Glue or similar	For fixing the laser board and sensor
1		Blue tack	To preposition laser and sensor for gluing
		Matt Black paint	for inside the laser tube to reduce reflections and stray laser light
1		Stiff board for base approx. 15cmx50cm	I used Laminate floor board
1		Board for mounting components approx. 10cmx18cm	I used Laminate floor board
4		Pairs of chocolate strip electrical connector plus 2 small tap screw to mount on board	
4		4cm 2BA cheese head set screws	
12		2BA nuts	
1		Micro USB to USB power cable	
1		Optional(USB Power Bank)	
1		Optional micro USB PSU	

Tools	**Other Items**
Hacksaw Soldering Iron and Solder Wire wool and solder flux Blow torch it using solder joints 22mm pipe cutter steel ruler vice screwdrivers wire cutter/strippers Drill and 3mm & 8mm bit (approx.) Hammer and wood chisel Point nose pliers	PC with Arduino desktop software

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