

## CONCEALED WIRING CONCRETE CUTTER

### Abstract:

Malaysia is one of a developing country in the world that cause the demand for construction development sector increase rapidly. To meet the demand, the wiring contractor needs a sophisticated machine that can install the PVC (Polyvinyl Chloride) conduit pipe in the wall to make the beautiful appearance of electrical wiring system. The conventional way of doing the concealed wiring need to do the three steps with the different machines or tools. The first step is drawing two line using a pencil as a guide in doing the cutting process. The second step use a grinder machine for cutting process and the third step is using stone breaker or hammer and chisel to make a chases in the wall that will cause the concrete dust flying in the vicinity. Due to these problems, one of the best approach is using this project called Concealed Wiring Concrete Cutter (CWCC) which is considered as user and environment friendly. This machine can do all the three steps at once synchronously and the dust will falling down through the funnel. The laser beam in this machine used as a guide line for the cutting process and several disc cutter used to cut as well as to break the stone. The LED (Light Emitting Diode) use to illuminate the dim working area. The machine will be done by improvise the existing grinder machine to do all the three job simultaneously. Furthermore the dust protection which appearance as funnel used to avoid the dust flying around. The results shows that the CWCC can reduce from 50% to 70% of time for 1 inch hole depth depends on the length of the chases. The price also reduce until 32% as only one machine used with additional accessories. The machine can help the wiring contractor to do their job efficiently.

**Keyword:** Concealed wiring, concrete cutter, PVC conduit

**IP no:** nil

### Finding:

- i. From the experiment done the machine able to do all the three steps of concealed wiring to install the PVC conduit in the wall and the wiring work still can be done in the dark area.
- ii. From Table 1, it shows that the time taken to make chases in wall using the CWCC being shorter about 50% to 70% than the time taken in conventional way.
- iii. The finding shows how efficient this machine to enhance the conduit installation works by the wiring contractor without making any dust flying around.

Table 1  
Comparison of Time Taken for Proposed Design and Conventional

Size of chases (WxDxL) (inch)	Time taken by the concealed wiring concrete cutter (min)	Time taken by conventional way (min)	Percentage of time saving (%)
1 x 1 x 5	0.5	1	50
1 x 1 x 10	1	3	67
1 x 1 x 60	3	10	70
1 x 1 x 120	6	20	70

### Suggestion for future work

There are some improvements need to be done to get a more attractive and compact design:-

1. The power supply, laser beam and LED need to be designed inside the machine
2. The funnel design need to be amended so that it can be connected to a vacuum cleaner to ensure the work area is clean.

### Picture related to project

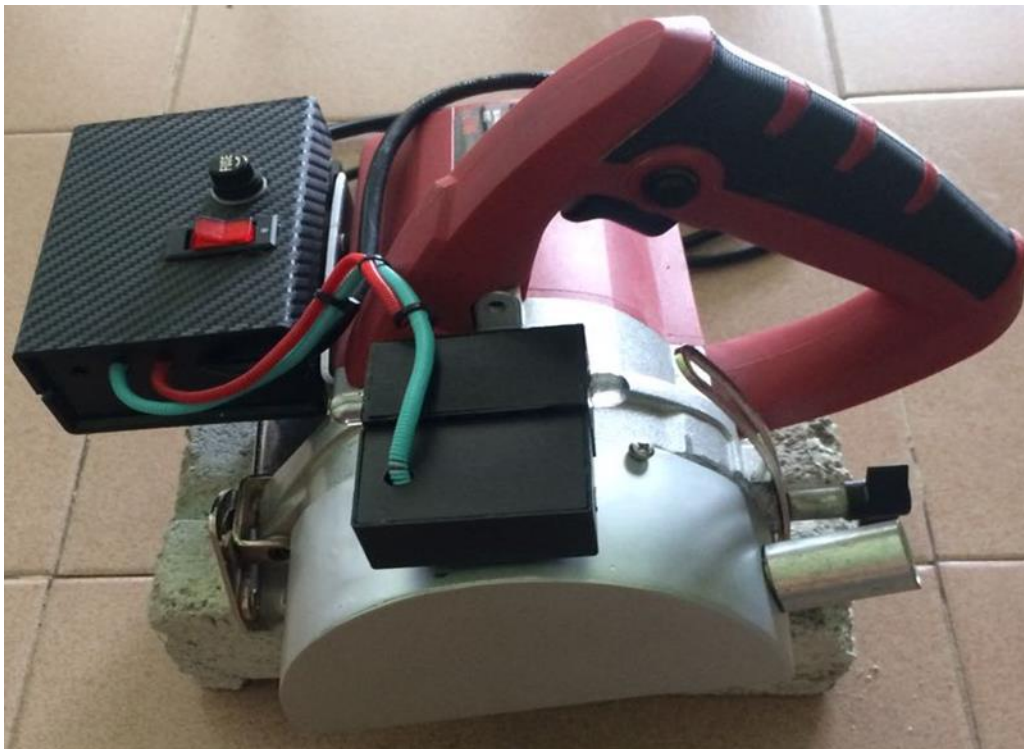


Figure of Concealed Wiring Concrete Cutter

Name of student & registration no:

1. Mohamad Noor Hakim Bin Jumhadi  
14DET14F2036
2. Mohamad Farhanudin Bin Kamarudin  
14DET14F2026

Supervisor of the project:  
Puan Haryani binti Hassan