

DIY CHICKEN ROASTER (D-CHITER)

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ABSTRACT

D-CHITER is developed using three (3) grilling rods that each rod can accommodate eight chickens. The three rods are connected to one motor using one chain as a belt. The direct current motor (dc motor) acts as a drive to rotate each of the baking rods. D-CHITER operation can be controlled remotely. AC and DC current supplies can be used as an alternative to suitability of the place. Motor speed adjusted using two (2) speed controller to ensure the better quality of roasted chicken. The D-CHITER component is easily isolated and re-assembled within 5 minutes and can be transported by vehicles as small as a kancil car.

Keywords: Rod, chicken, remote, speed controller, assemble, transport

1. INTRODUCTION

Roasted chicken is getting demanded especially during weekends and during festive seasons. In fact, during weddings, the roasted chicken menu is one of the main dishes for guests. Therefore, grilled chicken entrepreneurs need the right machine to produce roasted chicken in large quantities at any one time. They are desperately looking for the best alternatives or solutions to satisfy their customers by using the appropriate machines. This is because, for once roasted, the quantity of chicken to be grilled is so much that customers do not have to wait too long to get roasted chicken. In fact, the chicken roasted in the right way, will not be too hard or too raw and tasty to eat. The entrepreneur needs to be cooked in a suitable manner and the D-CHITER can provide satisfaction to the grilled chicken entrepreneurs. We will produce roast chicken machines that can grill chicken in large quantities and take a shorter time. The quality of chicken produced is also better than normal. In addition, the grill will rotate automatically so that both parts of the chicken can be cooked well and evenly. The concepts we are practicing are based on customer orders and requests. Customer satisfaction is our priority and it is a principle held today and in the future.

2. LITERATURE REVIEW

D-CITER innovate an existing chicken roaster out there to simple, handy, portable and technology wise. To build the D-CITER, we only use the metal iron, the wiper motor, the system gear / motor sprocket and the chain as a mechanical linkage. The difference between the existing machine and developed D-CITER is the dc motor wiper that can be connected directly to the car battery (DC supply) and ac converter (ac power supply). Additionally, we use a sprocket or gear that is suitable to ensure a smooth roll of the rod. In addition, we use motorcycle chains to replace the belt because the motorcycle chain is more durable and long life. We also use switch to adjust the speed of the wiper motor. It is used to control the turbidity of the motor during the process of grilling the chicken to ensure that the chickens are well cooked simultaneously. The attention, survey and focus on such machines that are available in market are also made to get a more perfect idea.



Source: (actual picture)

Figure 1: Example of common chicken roaster

Figure 1 shows the grilled chicken commonly used by entrepreneurs at present.

3. METHODOLOGY

D-CITER is developed in two phases. The first stage is the project planning starting from August to November 2017. The second stage involves the construction of the project from January to March 2018. Gantt Chart as table 1 and table 2 shows the activity that has been implemented.

Table 1: Activity in phase 1

| No | Activity | Week | | | | | | | | | | | | | | | | | |
|----|----------------------------------|------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | |
| 1 | Registration week | ■ | | | | | ■ | | | | | | | ■ | | | | | |
| 2 | Project briefing | | ■ | | | | ■ | | | | | | | ■ | | | | | |
| 3 | Project brain storming | | | ■ | | | ■ | | | | | | | ■ | | | | | |
| 4 | Gathering project idea | | | | ■ | | ■ | | | | | | | ■ | | | | | |
| 5 | Project survey | | | | | ■ | ■ | | | | | | | ■ | | | | | |
| 6 | Finding analysis | | | | | | ■ | ■ | | | | | | ■ | | | | | |
| 7 | Preparing proposal project title | | | | | | ■ | | ■ | ■ | | | | ■ | | | | | |
| 8 | Project Designing | | | | | | ■ | | | | ■ | ■ | | ■ | | | | | |
| 9 | Components finding | | | | | | ■ | | | | | | | ■ | | | | | |
| 10 | Components analysis | | | | | | ■ | | | | | | | ■ | | | | | |
| 11 | Prepare for presentation | | | | | | ■ | | | | | | | ■ | | ■ | | | |
| 12 | Project presentation | | | | | | ■ | | | | | | | ■ | | | ■ | | |
| 13 | Submit complete project report | | | | | | ■ | | | | | | | ■ | | | | | ■ |
| 14 | Revision week | | | | | | ■ | | | | | | | ■ | | | | | ■ |

Table 2: Activity in phase 2.

| No | Activity | Week | | | | | | | | | | | | | | | | |
|----|--|------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 1 | Registration week | ■ | | | | | | | | | | | | | | | | |
| 2 | Searching Hardware equipments | | ■ | | | | | | | | | | | | | | | |
| 3 | Circuit testing on proto board | | | ■ | | | | | | | | | | | | | | |
| 4 | Continue testing circuit | | | | ■ | | | | | | | | | | | | | |
| 5 | Hardware construction | | | | ■ | ■ | ■ | ■ | | | | | | | | | | |
| 6 | 1 st report & running system | | | | | | | ■ | ■ | | | | | | | | | |
| 7 | Start wiring | | | | | | | | ■ | ■ | | | | | | | | |
| 8 | Continue project construction/modification | | | | | | | | | ■ | ■ | | | | | | | |
| 9 | Testing confirmation | | | | | | | | | | ■ | ■ | ■ | | | | | |
| 10 | Project commission | | | | | | | | | | | | | ■ | | | | |
| 11 | Prepare for presentation | | | | | | | | | | | | | | ■ | | | |
| 12 | Project presentation | | | | | | | | | | | | | | | ■ | | |
| 13 | Submit complete project report | | | | | | | | | | | | | | | | ■ | |
| 14 | Revision week | | | | | | | | | | | | | | | | | ■ |

4. RESULTS AND DISCUSSIONS

Full specification of the D-CITER is tabulated in Table 3:

Table 3: D-CITER specification

| Specification | | Motor Free Load | |
|--------------------------|-----------------|------------------|----------|
| Dimension | 57" x 33" x 18" | Voltage supply | 12.0 VDC |
| Weight | 30.0 kg | Starting current | 1.0 amp |
| Full Capacity | 36 kg (chicken) | Running current | 0.80 amp |
| | | | |
| Motor with weight | | | |
| Weight / rod | 5.0 kg | | |
| Starting current | 2.0 amp | | |
| Running current | 1.60 amp | | |
| | | | |
| Speed 1 | 43.0 RPM | | |
| Speed 2 | 50.5 RPM | | |
| | | | |
| Remote (SRC) | | | |
| Frequency | 433MHz | | |
| Distance | 20-40m | | |
| Operation | Relay | | |



Figure 2: DIY Chicken Roaster- D-Chiter

5. CONCLUSIONS

As a conclusion, this project was developed to complement our paperwork as well as further enhance our knowledge of the project's construction process. In conclusion, in developing this project, we are more responsible for the work given, more sensitive to project-related issues, open-mindedness and cooperation in preparing papers. We can also understand the needs of the project, such as problems, benefits, and objectives of the community.

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