

Report On
Universal Motor Project
In
Walton Micro-Tech Corporation limited

By
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An internship report submitted to the BRAC Business School in partial fulfillment of the requirements for the degree of Masters of Business Administration

BRAC Business School
BRAC University
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Declaration

It is hereby declared that

1. The internship report submitted is my own original work while completing degree at Brac University.
2. The report does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The report does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I/We have acknowledged all main sources of help.

Student's Full Name & Signature:

Student Full Name
Student ID

Supervisor's Full Name & Signature:

Supervisor Full Name
Designation, Department
Institution

Letter of Transmittal

Zaheed Husein Mohammad Al-Din
Senior Lecturer
BRAC Business School
BRAC University
66 Mohakhali, Dhaka-1212

Subject: **Solicitation for Acceptance of the Internship Report on Walton.**

Dear Sir,

With great pleasure to submit you my internship report titled “**Universal Motor Project in Walton micro-tech Industries Limited**”. I was apporioned to Research and Development (R&D) department of Walton Group. I have tried my level best to fulfill all my requirements of internship and tried to follow your instructions in the time of preparing this report. This gave me the opportunity to use my theoretical knowledge in the practical field, which will help me in my upcoming career. The report contains a detailed study on different activities of this Universal Motor project.

I also want to thank you for your coordination and supervision to guide for preparing the internship report and I will be very thankful if you could kindly provide me with your valuable feedback on this study of mine.

I trust that the report will meet the desires.

Sincerely yours,

Md Abdullah Al Zakaria
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BRAC University
17 December, 2019

Executive Summary

Walton is a renowned electronics brand in Bangladesh. It has started his electronics business in early 2000. At first, they are trying to import product from china and other countries and sell it in our country. In a few years they realized trading business is not a good idea for long time. Slow and steady they want to produce some parts at their factory near Chandra, Gazipur. And now they are capable to produce Refrigerator, Air conditioner, Television, Motor cycle and so on. They saw Bangladesh is a good market for home appliance product. And also, they can export home appliance product to Europe and Africa. Recently Walton Home appliance product get performance test in Germany and these products have been passed in all criteria. It may create a chance to export in the Europe market. Blender is one of them. Blender motor is the most critical part in this. So, Walton has decided to go for blender motor production. Universal motor is the most popular as blender motor. Walton has previous experience in different type of motor production like fan motor, so universal motor project will not be a big deal.

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Chapter 1

Introduction

1.1 Walton

Walton is the latest multinational electrical, electronics, automobiles and other appliances brand with one of the largest well-equipped R&D facilities in the world carried out its production through different subsidiaries under the banner of Walton group headquarters in Bangladesh. Today, Walton has a workforce of more than 20000+ in total 22 production bases under 680+ acres of factory area. The capacity of yearly production is 10 million units based on the market demands. Walton is the giant professional manufacturer in the relevant industry and has gained high reputation in terms of its unbeatable capability for producing Electrical and Electronics goods in the most competitive way in aspect of quality, cost, design and innovation.

Walton Group of Industries was founded by S.M Nurul Alam Rezvi in 1977 as a trading company. Over the next three decades the group diversified into steel, textiles, electronics and automobiles. Walton entered into the steel industry in late 1970s and the electronics and automobiles in early 2000s; these areas would drive its subsequent growth. Since the 2000s Walton has expanded towards electronics and automobiles and these became its most important sources of income.

Along the way, Walton has earned domestic and global recognition for its experience and proven track record in a variety of electronics fields. Walton is the pioneer of developing state of the art designs and modern technology having leading market share specializing in Multi-Store Refrigerators, Freezers, Air Conditioners, LED/ LCD televisions, Motorcycles, Smart Phones and Home Appliances. WALTON has established a milestone as the highest exporting Bangladeshi enterprise in the field of electronics, with a universal presence in over 20 countries and by 2020 the presence of Walton will be ensured almost every country in the world.

1.2 Vision

To become an influential global brand within 2021 and working to reach one of the world's top 5 brands within 2030 in the sector of electrical and electronics.

1.3 Mission

- Through Innovation
- New technology
- Competitive price and superior quality
- Ensuring consumer satisfaction

1.4 Background History

Business started since 1977 and early 2008 WHIL started manufacturing of Refrigerator, Freezer, Air Conditioner, Compressor and now onward expanding its operation in Television, Home & Electrical Appliances. Walton & Marcel have become the most trusted and prestigious Brand in the E&E industry in Bangladesh through its strong manufacturing base, quality products, competitive price, extensive market coverage and last but not the least, the prompt after sales services. As a result, within a very short period of time, both the Brands have captured substantial market share and positioned itself as the most dominant performer in the E&E sector in Bangladesh. Product portfolio of WHIL includes Refrigerator (Frost & Non-Frost), Freezer, Air Conditioner, Compressor and Television.

1.5 Production Facilities

The Manufacturing Plant & Headquarters of WHIL is located at Chandra, Kaliakoir, Gazipur, Bangladesh. The plant is treated as one of the sophisticated manufacturing plants in Bangladesh as well as in South Asia. Walton innovates to build a more advanced, sustainable and environment friendly society through the combination of sophisticated technologies and expertise. The manufacturing plant of WHIL is approx. 5,000,000 sft. of working space consisting of 19 Buildings and Shades.

1.6 Certificates

Walton has been maintaining 100% compliances since its inception and certified ISO 14001:2004 Refrigerators & Air Conditioner Division, ISO 9001:2015 Refrigerators & Air Conditioner Division and OHSAS 18001:2007 Certificate for successfully adopting sound occupational health and safety management systems, efficient staff management, minimizing the risk of accidents and achieving adequate corporate reputation ensuring the standard of products and combining the above to minimize the production cost.

Chapter 2

Project Description

2.1 Walton Micro-Tech Industries Limited (WMTL)

Walton Micro-Tech Corporation is situated near the Walton Hi-Tech Industries Limited's factory at Chandra in Gazipur. It is the manufacturing, assembling and R&D plant for Walton's electronics products such as mobiles, televisions (CRT, LED), home appliances (blender, rice cooker, induction cooker, air fryer, rechargeable fan, air cooler, hair dryer, DVD players etc.), LED lights, battery, electric motor etc.

2.2 Walton Home Appliance

Walton home appliances are the complete solution of people's household need. Walton home appliances come with advanced technological features. Walton offer a wide range of home appliance products for making daily life easier. Blender in also a product of Walton. Mixer grinder, Hand blender, Juicer, Chopper blender are regular product. AC/DC Motor are very common to operate these blenders. Universal Motor is the most popular motor among them.

2.3 Universal Motor

The universal motor is a type of electric motor that can operate on either AC or DC power and uses an electromagnet as its stator to create its magnetic field. It is a commutated series-wound motor where the stator's field coils are connected in series with the rotor windings through a commutator. Now a days Walton imports universal motor from China. In 2020 Annul demand for universal motor in Walton around 1 million. So Walton decided to go for own manufacturing at Walton Micro-tech park near Chondra, Gazipur. Walton do an investment of 6 Million dollars for this universal motor project.

Project Name	Universal Motor Project
Duration	6 Months
Product	170W, 230W, 650W, 800W motor
Investment	6 Million dollars
Capacity	1 Million
Annual demand	0.8 Million
Total machine and die	50
Manpower	40
Floor space	5000 Sqr Feet

2.4 Machine

Production Line	Sl No	Machine Name	Quantity
Stator Line Machine	1	Insulation Paper Forming Machine	1
	2	Extra Tooling	1set
	3	Stator Winding Machine	1
	4	semi auto coil winding machine	1
	5	Wire Stripping machine	1
	6	Heat Gun Machine	2
	7	Varnish Line	1set
Armature Line Machine	8	Shaft End cover and commutator pressing machine	1
	9	Extra Tooling	1
	10	Insulation Paper Insertion Machine	1
	11	Extra Tooling for 7020	1
	12	Armature Winding Machine	1
	13	Extra Tooling	1

	14	Wedge inserting machine	1
	15	Extra Tooling	1
	16	Commutator hot stacking machine	1
	17	Extra Tooling for 7020	
	18	Servo commutator Turning Machine	1
	19	Extra Tooling for 7020	1
	20	semi Auto Armature balancing Machine	1
	21	Extra Tooling	1
	22	Armature trickling machine	1
Motor Testing Machine	23	Stator Testing Machine	1
	24	Armature testing Machine	1
	25	Extra Tooling for	1
	26	Motor Final Testing Machine	1
Press Machine	27	Hi Speed Power Press Machine	1
	28	Power Press Machine	1
Injection mold machine	29	Injection Mold Machine	1
	30	Injection Mold Machine	1
Cable processing unit	31	High Accuracy Wire cutting & stripping Machine	1
	32	Semi-Automatic Terminal crimping Machine-FE- 2TC	1
Assemble Line	33	Fan Assembly press machine	2
	34	Electric Screw Gun	2
	35	Conveyer Belt-Armature Line	1

2.5 Manpower

Sl	Production line	Responsible Person/Working Process	Qualification	Manpower
1		Project Head	BSC in ME	0.05
2		Electrical Engineer	BSC in EEE	0.1
3		Mechanical design Engineer	BSC in ME	0.1 b
4		Production Engineer	Diploma in EEE	1
5		Quality control	Diploma in EEE	1
6		Quality checking Person	SSC/HSC	1
7	Stator Line	Insulation paper forming machine & insert in stator core	SSC/HSC	1
8		Stator winding Process	SSC/HSC	1
9		Stator winding & insert in stator core	SSC/HSC	1
10		wire stripping, Resistance check, Cable crimping & Thermal protector	SSC/HSC	1
11		Black Tube, Hot gun glue & Cable Tie Binding	SSC/HSC	1
12		Stator Testing	SSC/HSC	1
13		Stator Varnish	SSC/HSC	1
14		Armature Line	Shaft End Cover & commutator Press	SSC/HSC
15	Insulation paper inserting Process		SSC/HSC	1
16	Automatic Armature winding process		SSC/HSC	1
17	wedge paper insert process		SSC/HSC	1
18	Commutator Hot stacking process		SSC/HSC	1
19	Commutator Turning process		SSC/HSC	1
20	Armature Balancing process		SSC/HSC	1
21	Armature Testing		SSC/HSC	1
22	Armature Varnish Process		SSC/HSC	1
23	Assembly line	Front Bracket Back Bracket, Red washer wave washer	SSC/HSC	1
24		Screwing, Brush, cable connection	SSC/HSC	1
25		final Testing Machine& fan assembly	SSC/HSC	1
26	Press Machine	Hi Speed Power Press Machine_7020 model	SSC/HSC	2

27		Hi Speed Power Press Machine_5440 model	SSC/HSC	
28		Power Press Machine-60 ton_7020 model	SSC/HSC	1
29		Power Press Machine-60 ton_5440 model	SSC/HSC	
30	Injection mold machine	Injection Mold Machine-150 ton	SSC/HSC	1
31		Injection Mold Machine-150 ton	SSC/HSC	
32		Injection Mold Machine-120 ton	SSC/HSC	1
33		Injection Mold Machine-120 ton	SSC/HSC	
34	Cable processing unit	High Accuracy Wire cutting & stripping Machine	SSC/HSC	
				27.25

Chapter 3

3.1 Work Breakdown Structure

The most useful tool for accomplishing all of project tasks is the work breakdown structure (WBS). The idea behind the WBS is simple Nevertheless, it is still not easy to estimate task durations for activities that have never been performed before. Because this is the typical situation in engineering hardware and software development projects, we might expect many of these estimates to be in error, and this seems to be demonstrated by experience. Still, the work breakdown structure makes it easier to estimate knowledge tasks than any other tool we have.

Table 3-1. WBS diagram to start universal motor production

SL	Task	Responsible dept.	Start	End	days
1	Model Selection by management	Management			
2	Sourcing quotation collection	Sourcing	Mon 10/28/19	Wed 11/27/19	23 days
3	Discussion with suppliers	R&D & Sourcing	Tue 9/24/19	Mon 10/14/19	15 days
4	3D printed sample check	R&D	Wed 10/2/19	Thu 10/24/19	17 days
5	Mold LC	Commercial	Fri 10/25/19	Sat 2/22/20	102 days
6	Mold to factory	Commercial	Tue 10/1/19	Sat 11/30/19	45 days
7	Motor production trial	R&D & Sourcing	Sun 12/1/19	Sun 12/15/19	12 days
8	Motor testing	R&D & Sourcing	Mon 12/16/19	Thu 1/30/20	34 days
9	Motor production	R&D & Sourcing	Sun 12/1/19	Tue 12/31/19	23 days
10	Different sample parts check	R&D & Sourcing	Tue 10/1/19	Mon 12/30/19	65 days
11	Silicon mold development	R&D & Sourcing	Tue 12/10/19	Sat 2/8/20	45 days

12	PCB confirmation with aging by supplier	R&D & Sourcing	Sun 2/9/20	Mon 2/24/20	12 days
13	PCB collection to factory	R&D	Tue 2/25/20	Tue 3/3/20	6 days
14	Sample check	QC	Wed 3/4/20	Wed 5/6/20	46 days
15	Standard setup	Commercial	Sat 3/7/20	Thu 3/12/20	5 days
16	Pre shipment QC and PSI SOP	Inj. mold	Mon 10/28/19	Tue 2/25/20	87 days
17	Raw material to factory	R&D	Wed 2/26/20	Thu 3/12/20	12 days
18	Mold trial	R&D	Sat 11/30/19	Tue 12/10/19	8 days
19	Carton	R&D	Tue 12/10/19	Thu 1/9/20	23 days
20	User manual work	R&D	Fri 3/13/20	Tue 3/17/20	3 days
21	BOM	R&D	Wed 3/18/20	Wed 3/25/20	6 days
22	Process Planning and confirmation	R&D, QC, Production	Thu 3/26/20	Mon 3/30/20	3 days
24	Trial Production	R&D, QC, Production	Mon 3/31/2020	Tue 4/10/2020	9 days
25	Confirmation for mass production	R&D, QC, Production	Sun 4/11/2020	Sat 4/15/2020	5 days

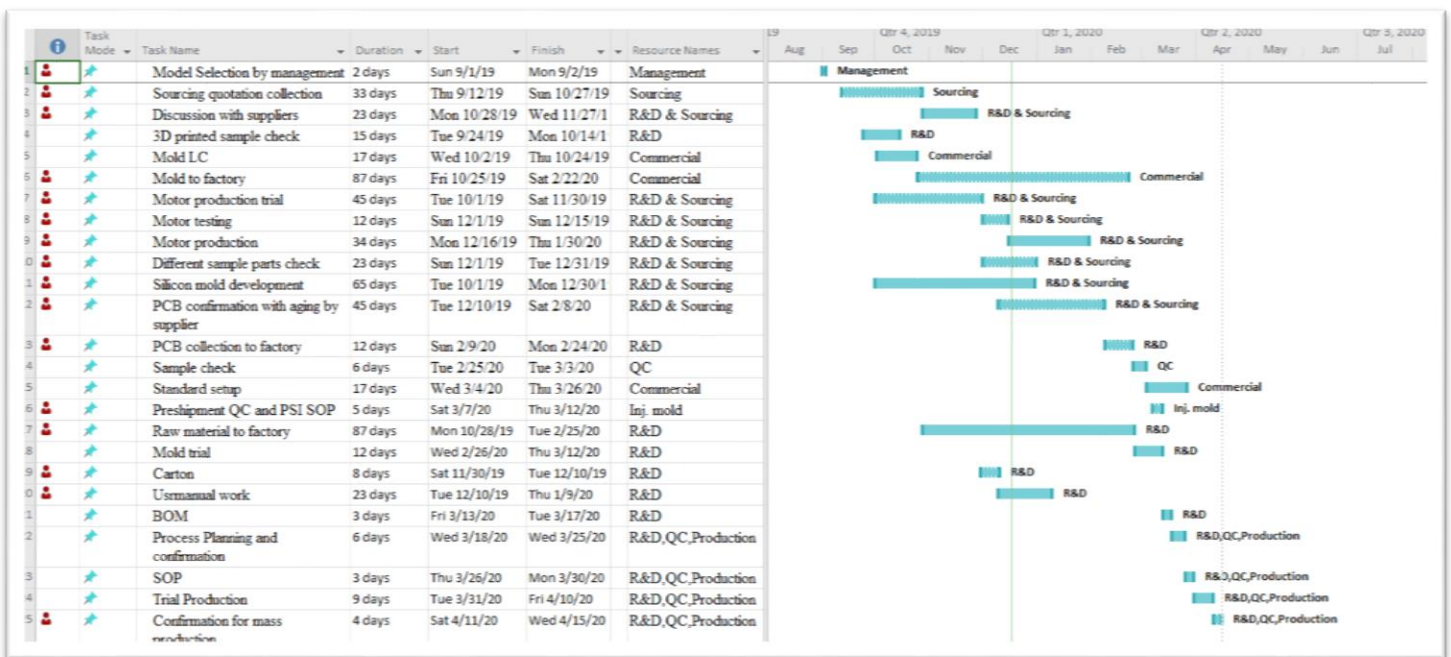
A work breakdown structure does not show the sequence in which work is performed! Such sequencing is determined when a schedule is developed.

Chapter 4

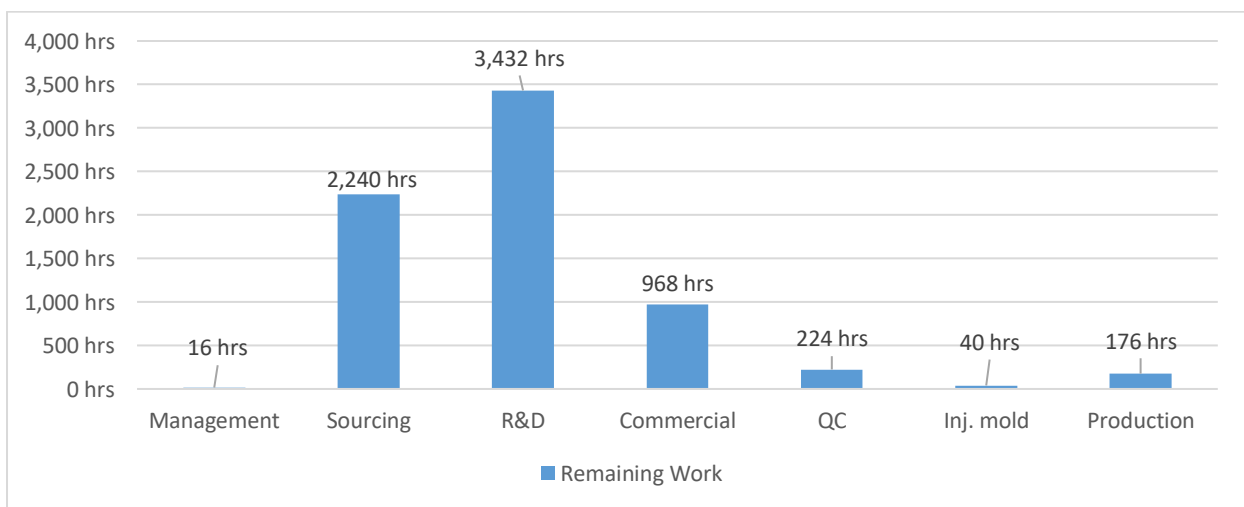
Analysis

The WBS is a good way to show the scope of a job. In fact, I have had the experience of finding the planning group members themselves overwhelmed by the complexity and magnitude of the WBS. If it impresses them, think of its impact on an outsider. Assigning responsibility for tasks is another important use of the WBS. Each task to be performed should be assigned to a particular person who will be responsible for its completion.

4.1 Project flow chart



4.2 Resource overview



4.3 Resource start and finish time

Name	Start	Finish	Work
Sourcing	Thu 9/12/19	Sat 2/8/20	2,240 hrs
R&D	Tue 9/24/19	Wed 4/15/20	3,432 hrs
Commercial	Wed 10/2/19	Thu 3/26/20	968 hrs
QC	Tue 2/25/20	Wed 4/15/20	224 hrs
Inj. mold	Sat 3/7/20	Thu 3/12/20	40 hrs
Production	Wed 3/18/20	Wed 4/15/20	176 hrs

R&D, Sourcing, Commercial, QC and Production department will play the vital role to run the project. R&D has the most engagement with this project. So the R&D dept. must be capable to handle this new project. Although glue that holds the team together, As the project progresses, individuals often assume roles that fit naturally into the team environment with little or no resulting conflict. In other cases, it becomes evident that the chemistry is not right, resulting in daily clashes and negative dissent. We have to figure out team member strengths, weaknesses, traits, and patterns to establish lasting project. Each team member is present for a purpose, usually functional or subject matter expertise. Look for opportunities to coordinate team member efforts or even form sub teams to leverage their combined talents.

Chapter 5

Recommendation

An electric motor is an electrical machine that converts electrical energy into mechanical energy. Most electric motors operate through the interaction between the motor's magnetic field and electric current in a wire winding to generate force in the form of rotation of a shaft. Any Electrical energy conversion to mechanical energy is sophisticated. R&D, Sourcing, Commercial, QC and Production is related to the new project. An integrated team should be created from all the respected departments so that project implementation will be easy. If in a running project where people are assigned temporarily but still report to their own bosses, keep their managers informed about what they are doing. Building good relations with those managers needed to get the job done. To produce motor, Silicon steel and Copper wire are the most important raw material which will be imported from China and Taiwan. If the raw material price will high in near future, it will increase the pricing of Walton motor. Sourcing dept should create alternate vendors of these raw materials.

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