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CALCULATION OF ANDROID BASED EGGTRAY PRODUCTION BASED PRICES USING MOVING AVERAGE METHOD (CASE STUDY OF PT. SINAR ERA BOX GRESIK)

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ABSTRACT

The price of the staple production based on activities is how to determine a fee by way of tracing the activities of an organization the company in generating an item. This is intended so that the largest cost breakfast buffet in producing goods itself. In addition the existence of a desire of the company to produce goods and costs as effectively as possible. Tracking the cost of these activities through automatic menegement parties can manage cost effectiveness. To find out the price of a staple production of PT.Sinar Era Box Gresik, then on the basis of the research that's going on. Research carried out using moving average algorithm (moving average), while the data is the data that comes from the PT.Sinar Era Box Gresik. This research resulted in the value of the production cost of goods based on the average price moves in can be of any purchase of goods.

Keywords: *cost of goods production, Android, the moving average.*

1. INTRODUCTION

1.1 Background Research

PT Kenjaya started to expand into the business of manufacturing cardboard boxes in 1999 and changed its name to PT. RAY ERA BOX. PT. SINAR ERA BOX still maintains the principles of the company's previous work, that the production process in the factory is very concerned about the ecosystem and the materials used are environmentally friendly recycled materials.

Due to factory waste that can still be processed again and there is demand to meet the American and European market share, then PT. SINAR ERA BOX in 2011 established the Industrial Packaging Division that uses waste paper, such as egg racks, shoe soles and lamp trays.

The cost of production based on activity is a way to determine a cost by tracking activities in a company organization in producing an item. This is intended to illustrate the greatest cost requirement for producing the goods themselves.

In addition there is a desire from the company to produce goods with the most cost effective as possible. From the existence of tracking costs through this activity the party can automatically manage cost effectiveness.
From the existence of cost tracking through this activity automatically the management can manage cost effectiveness.

The Moving Averages method is a method of forecasting levelling values by taking a group of observational values which are then averaged, then using the average as a forecast for the next period. The term moving average is used, because every time a new observation data is available, the new average is calculated and used as a forecast.

This final project aims to implement the moving average method for calculating the cost of eggtray production at PT. RAY ERA BOX. With this implementation, it can give an idea of the cost of eggtray production at PT. RAY ERA BOX.

II LITERATURE REVIEW

[1] Analyzing the determination of the cost of production needs to know the cost of production that occurs directly related to the production process. These conditions will affect the determination of selling prices and profits to be obtained by the company. The purpose of this study is to determine the calculation of the cost of production using the variable costing method in the process of determining the selling price at PT. Sari Malalugis Bitung.

The analytical method used is descriptive analysis. The results showed that the calculation of the company's cost of production with the calculation of the cost of production using the variable costing method contained a price difference.

The calculation of the selling price of the company's products with the calculation of the cost of goods sold results of the evaluation, it can be seen that the selling price of each frozen fresh fish product according to the company is higher in price compared to the selling price of each product by the variable costing method.

III SUPPORTING THEORY

3.1 Cost of Production According to Expert

Many experts explain the cost of production with completely different definition. In addition to the approach taken by the experts, the method of interpreting the cost of production is also very different.

Here are some experts who explain the cost of goods manufactured:

1) Supriyono (2000: 288)
   "The cost of production is the cost element that is produced both fixed (fixed cost) and variable (variable cost)". He explained with simple, basically all the elements of costs attached to the production of goods do not look at these costs fixed or variable costs that tend to fluctuate in accordance with the capacity of goods produced.
2) Bastian Bustami and Nurlela (2010: 49)
   "The cost of production is a collection of production costs in the initial process and reduced supply of products in the final process. The cost of production is bound to a certain time period. The cost of production will be the same as the cost of production if there is no product inventory in the initial and final processes ". In this definition Bastian Bustami and Nurlela explain that the cost of production differs from the cost of production. But if the initial inventory and the ending inventory is not there then these two cost elements are same.
3) T. Horngren (2008)
   "The cost of goods manufactured is the cost of goods purchased to be processed to completion, both before and during the current accounting period." In this sense Horngren explains that all costs inherent in the production of goods will be recognized as cost of goods manufactured even if these costs occur before the current accounting period.
4) Mursyidi (2010)
   "The cost of production is the costs incurred which are charged or deducted from income". This explains if all expenses deducted from gross turnover or sales are the cost of goods manufactured. So this theory clearly states that if we calculate gross profit by subtracting turnover from the cost of production.

3.2 Definition and concept of assessment of availability by the moving average method

In the calculation of inventory valuation using the moving average method, every purchase of merchandise that occurs is added to the value of the merchandise inventory balance then averaged by the quantity available to determine the average cost of goods sold when the goods are sold. The average price on the moving average method must be updated at all times when goods enter and exit. The moving average method uses perpetual inventory records. The perpetual method of recording system, also called the book method, is a system where every incoming and outgoing inventory is recorded in the books.

$$\text{cost per unit} = \frac{\text{Total Price}}{\text{Number of Units}}$$

IV SYSTEM ANALYSIS AND DESIGN

4.1 System Requirements Analysis

The system analysis stage has the task of identifying evaluating problems, opportunities, obstacles that occur and the needs that are expected so that it can be proposed to calculate the cost of production so an application is made to calculate the cost of production using the Android-based moving average method.

4.2 Calculation of Moving Average Method

The company records inventory using the moving average method. The following is the purchase data obtained during May 2018:

Table 4.1 Purchases on 11 May 2018

TANGGAL	BARANG	HARGA	UNIT	SATUAN
11/5/2018	Sludge Paper	20.000	50	kg
11/5/2018	Avalan Karton	200.000	50	kg
11/5/2018	Avalan Gelondongan	75.000	50	kg
11/5/2018	Duplek	100.000	50	kg
11/5/2018	Plastik Pembungkus	500.000	1.000	lbr
11/5/2018	Tali Rafia	250.000	25	kg
11/5/2018	Kayu Bakar	6.800.000	8	rit
11/5/2018	Borongan	150.000	30	bal
11/5/2018	Harian	2.856.000	34	hari
11/5/2018	Bonus	51.000	34	bal
11/5/2018	Pemakaian Solar	3.600	30	ltr
11/5/2018	Transportasi	900.000	5	rit
11/5/2018	Harga Solar	1.375.000	250	ltr
11/5/2018	Muatan Colt Diesel	2.000	5	bal

Table 4.2 Purchases on 18 May 2018

TANGGAL	BARANG	HARGA	UNIT	SATUAN
18/5/2018	Sludge Paper	20.000	50	kg
18/5/2018	Avalan Karton	200.000	50	kg
18/5/2018	Avalan Gelondongan	75.000	50	kg
18/5/2018	Duplek	100.000	50	kg
18/5/2018	Plastik Pembungkus	500.000	1.000	lbr
18/5/2018	Tali Rafia	250.000	25	kg
18/5/2018	Kayu Bakar	6.800.000	8	rit
18/5/2018	Borongan	150.000	30	bal
18/5/2018	Harian	2.856.000	34	hari
18/5/2018	Bonus	51.000	34	bal
18/5/2018	Pemakaian Solar	3.600	30	ltr
18/5/2018	Transportasi	900.000	5	rit
18/5/2018	Harga Solar	1.375.000	250	ltr
18/5/2018	Muatan Colt Diesel	2.000	5	bal

Table 4.3 Purchases on 25 May 2018

TANGGAL	BARANG	HARGA	UNIT	SATUAN
25/5/2018	Sludge Paper	20.000	50	kg
25/5/2018	Avalan Karton	200.000	50	kg
25/5/2018	Avalan Gelondongan	75.000	50	kg
25/5/2018	Duplek	100.000	50	kg
25/5/2018	Plastik Pembungkus	500.000	1.000	lbr
25/5/2018	Tali Rafia	250.000	25	kg
25/5/2018	Kayu Bakar	6.800.000	8	rit
25/5/2018	Borongan	150.000	30	bal
25/5/2018	Harian	2.856.000	34	hari
25/5/2018	Bonus	51.000	34	bal
25/5/2018	Pemakaian Solar	3.600	30	ltr
25/5/2018	Transportasi	900.000	5	rit
25/5/2018	Harga Solar	1.375.000	250	ltr
25/5/2018	Muatan Colt Diesel	2.000	5	bal

Table 4.4 Purchases on 30 May 2018

TANGGAL	BARANG	HARGA	UNIT	SATUAN
30/5/2018	Sludge Paper	20.000	50	kg
30/5/2018	Avalan Karton	200.000	50	kg
30/5/2018	Avalan Gelondongan	75.000	50	kg
30/5/2018	Duplek	100.000	50	kg
30/5/2018	Plastik Pembungkus	500.000	1.000	lbr
30/5/2018	Tali Rafia	250.000	25	kg
30/5/2018	Kayu Bakar	6.800.000	8	rit
30/5/2018	Borongan	150.000	30	bal
30/5/2018	Harian	2.856.000	34	hari
30/5/2018	Bonus	51.000	34	bal
30/5/2018	Listrik	25.000.000	1	rp/bln
30/5/2018	Pemakaian Solar	3.600	30	ltr
30/5/2018	Transportasi	900.000	5	rit
30/5/2018	Harga Solar	1.375.000	250	ltr
30/5/2018	Muatan Colt Diesel	2.000	5	bal

CALCULATION OF PURCHASES:

Table 4.5 Purchasing Sludge Paper

TANGGAL	BARANG	HARGA	UNIT	SATUAN
11/5/2018	Sludge Paper	20.000	50	kg
18/5/2018	Sludge Paper	20.000	50	kg
25/5/2018	Sludge Paper	20.000	50	kg
30/5/2018	Sludge Paper	20.000	50	kg
Total		**80.000**	**200**	

Table 4.6 Purchasing Avalan Cardboard

TANGGAL	BARANG	HARGA	UNIT	SATUAN
11/5/2018	Avalan Karton	200.000	50	kg
18/5/2018	Avalan Karton	200.000	50	kg
25/5/2018	Avalan Karton	200.000	50	kg
30/5/2018	Avalan Karton	200.000	50	kg
Total		**800.000**	**200**	

Table 4.7 Purchasing Avalan Logs

TANGGAL	BARANG	HARGA	UNIT	SATUAN
11/5/2018	Avalan Gelondongan	75.000	50	kg
18/5/2018	Avalan Gelondongan	75.000	50	kg
25/5/2018	Avalan Gelondongan	75.000	50	kg
30/5/2018	Avalan Gelondongan	75.000	50	kg
Total		**300.000**	**200**	

Table 4.8 Purchasing Duplex

TANGGAL	BARANG	HARGA	UNIT	SATUAN
11/5/2018	Duplek	100.000	50	kg
18/5/2018	Duplek	100.000	50	kg
25/5/2018	Duplek	100.000	50	kg
30/5/2018	Duplek	100.000	50	kg
Total		**400.000**	**200**	

Table 4.9 Purchasing Plastic of Wrapping

TANGGAL	BARANG	HARGA	UNIT	SATUAN
11/5/2018	Plastik Pembungkus	500.000	1.000	lbr
18/5/2018	Plastik Pembungkus	500.000	1.000	lbr
25/5/2018	Plastik Pembungkus	500.000	1.000	lbr
30/5/2018	Plastik Pembungkus	500.000	1.000	lbr
Total		**2.000.000**	**4.000**	

Table 4.10 Purchasing Raffia rope

TANGGAL	BARANG	HARGA	UNIT	SATUAN
11/5/2018	Tali Rafia	250.000	25	kg
18/5/2018	Tali Rafia	250.000	25	kg
25/5/2018	Tali Rafia	250.000	25	kg
30/5/2018	Tali Rafia	250.000	25	kg
Total		**1.000.000**	**100.000**	

Table 4.11 Purchasing Firewood

TANGGAL	BARANG	HARGA	UNIT	SATUAN
11/5/2018	Kayu Bakar	6.800.000	8	rit
18/5/2018	Kayu Bakar	6.800.000	8	rit
25/5/2018	Kayu Bakar	6.800.000	8	rit
30/5/2018	Kayu Bakar	6.800.000	8	rit
Total		**27.200.000**	**32**	

Table 4.12 Wholesale Costs

TANGGAL	BARANG	HARGA	UNIT	SATUAN
11/5/2018	Borongan	150.000	30	bal
18/5/2018	Borongan	150.000	30	bal
25/5/2018	Borongan	150.000	30	bal
30/5/2018	Borongan	150.000	30	bal
Total		**600.000**	**120**	

Table 4.13 Daily Costs

TANGGAL	BARANG	HARGA	UNIT	SATUAN
11/5/2018	Harian	2.856.000	34	hari
18/5/2018	Harian	2.856.000	34	hari
25/5/2018	Harian	2.856.000	34	hari
30/5/2018	Harian	2.856.000	34	hari
Total		**11.424.000**	**136**	

Table 4.14 Bonus Costs

TANGGAL	BARANG	HARGA	UNIT	SATUAN
11/5/2018	Bonus	51.000	34	bal
18/5/2018	Bonus	51.000	34	bal
25/5/2018	Bonus	51.000	34	bal
30/5/2018	Bonus	51.000	34	bal
Total		**204.000**	**136**	

Table 4.15 Electricity Payment

TANGGAL	BARANG	HARGA	UNIT	SATUAN
11/5/2018	Listrik	0	0	rp/bln
18/5/2018	Listrik	0	0	rp/bln
25/5/2018	Listrik	0	0	rp/bln
30/5/2018	Listrik	25.000.000	1	rp/bln
Total		**25.000.000**	**1**	

Table 4.16 Solar Usage

TANGGAL	BARANG	HARGA	UNIT	SATUAN
11/5/2018	Pemakaian Solar	3.600	30	ltr
18/5/2018	Pemakaian Solar	3.600	30	ltr
25/5/2018	Pemakaian Solar	3.600	30	ltr
30/5/2018	Pemakaian Solar	3.600	30	ltr
Total		**14.400**	**120**	

Table 4.17 Transportation Usage

TANGGAL	BARANG	HARGA	UNIT	SATUAN
11/5/2018	Transportasi	900.000	5	rit
18/5/2018	Transportasi	900.000	5	rit
25/5/2018	Transportasi	900.000	5	rit
30/5/2018	Transportasi	900.000	5	rit
Total		**3.600.000**	**20**	

Table 4.18 Diesel Prices

TANGGAL	BARANG	HARGA	UNIT	SATUAN
11/5/2018	Harga Solar	1.375.000	250	ltr
18/5/2018	Harga Solar	1.375.000	250	ltr
25/5/2018	Harga Solar	1.375.000	250	ltr
30/5/2018	Harga Solar	1.375.000	250	ltr
Total		**5.500.000**	**1.000**	

Table 4.19 Diesel Colt Charges

TANGGAL	BARANG	HARGA	UNIT	SATUAN
11/5/2018	Muatan Colt Diesel	2.000	5	bal
18/5/2018	Muatan Colt Diesel	2.000	5	bal
25/5/2018	Muatan Colt Diesel	2.000	5	bal
30/5/2018	Muatan Colt Diesel	2.000	5	bal
Total		**8.000**	**20**	

CALCULATION OF USAGE:

Table 4.20 Sludge Paper Usage

TANGGAL	BARANG	HARGA	UNIT	SATUAN
14/5/2018	Sludge Paper	8000	20	kg
22/5/2018	Sludge Paper	12000	30	kg
26/5/2018	Sludge Paper	8000	20	kg
29/5/2018	Sludge Paper	16000	40	kg
Total		**44000**	**110**	

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Table 4.21 Avalan Cardboard Usage

TANGGAL	BARANG	HARGA	UNIT	SATUAN
14/5/2018	Avalan Karton	80000	20	kg
22/5/2018	Avalan Karton	120000	30	kg
26/5/2018	Avalan Karton	80000	20	kg
29/5/2018	Avalan Karton	160000	40	kg
Total		**440000**	**110**	

Table 4.22 Avalan Logs Usage

TANGGAL	BARANG	HARGA	UNIT	SATUAN
14/5/2018	Avalan Gelondongan	30000	20	kg
22/5/2018	Avalan Gelondongan	45000	30	kg
26/5/2018	Avalan Gelondongan	30000	20	kg
29/5/2018	Avalan Gelondongan	60000	40	kg
Total		**165000**	**110**	

Table 4.23 Duplex Usage

TANGGAL	BARANG	HARGA	UNIT	SATUAN
14/5/2018	Duplek	20000	10	kg
22/5/2018	Duplek	40000	20	kg
26/5/2018	Duplek	20000	10	kg
29/5/2018	Duplek	60000	30	kg
Total		**140000**	**70**	

Table 4.24 Wrapping Plastic Usage

TANGGAL	BARANG	HARGA	UNIT	SATUAN
14/5/2018	Plastik Pembungkus	125000	250	kg
22/5/2018	Plastik Pembungkus	150000	300	kg
26/5/2018	Plastik Pembungkus	125000	250	kg
29/5/2018	Plastik Pembungkus	250000	500	kg
Total		**650000**	**1300**	

Table 4.25 Raffia Rope Usage

TANGGAL	BARANG	HARGA	UNIT	SATUAN
14/5/2018	Tali Rafia	50000	5	kg
22/5/2018	Tali Rafia	70000	7	kg
26/5/2018	Tali Rafia	50000	5	kg
29/5/2018	Tali Rafia	150000	15	kg
Total		**320000**	**32**	

Table 4.26 Firewood Usage

TANGGAL	BARANG	HARGA	UNIT	SATUAN
14/5/2018	Kayu Bakar	1700000	2	kg
22/5/2018	Kayu Bakar	3400000	4	kg
26/5/2018	Kayu Bakar	1700000	2	kg
29/5/2018	Kayu Bakar	5100000	6	kg
Total		**11900000**	**14**	

Calculation:
Price:

Total pembelian bulan 5		**Total pemakaian bulan 5**		**Total harga bulan 5**
80.000	-	44.000	=	36.000
800.000	-	440.000	=	360.000
300.000	-	165.000	=	135.000
400.000	-	140.000	=	260.000
2.000.000	-	650.000	=	1.350.000
1.000.000	-	320.000	=	680.000
27.200.000	-	11.900.000	=	15.300.000

Unit :

Total pembelian bulan 5		**Total pemakaian bulan 5**		**Total unit bulan 5**
200	-	110	=	90
200	-	110	=	90
200	-	110	=	90
200	-	70	=	130
4.000	-	1.300	=	2.700
100	-	32	=	68
32	-	14	=	18

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BARANG	TOTAL HARGA		TOTAL UNIT	HARGA /Satuan (rata-rata)	SATUAN
Sludge Paper	36.000	/	90	400	kg
Avalan Karton	360.000	/	90	4.000	kg
Avalan Gelondongan	135.000	/	90	1.500	kg
Duplek	260.000	/	130	2.000	kg
Plastik Pembungkus	1.350.000	/	2.700	500	lbr
Tali Rafia	680.000	/	68	10.000	kg
Kayu Bakar	15.300.000	/	18	850.000	rit
Borongan	600.000	/	120	5.000	bal
Harian	11.424.000	/	136	84.000	hari
Bonus	204.000	/	136	1.500	bal
Listrik	25.000.000	/	1	25.000.000	rp/bln
Pemakaian Solar	14.400	/	120	120	ltr
Transportasi	3.600.000	/	20	180.000	rit
Harga Solar	5.500.000	/	1.000	5.500	ltr
Muatan Colt Diesel	8.000	/	20	400	bal

4.3 Calculation of Cost of Production

The following is the data used to calculate the cost of goods manufactured by PT. Sinar Era Box Gresik:

Table 4.27 Material Price Index

NO	BARANG	HARGA	SATUAN
1	Sludge Paper	400	kg
2	Avalan Karton	4000	kg
3	Avalan Gelondongan	1500	kg
4	Duplek	2000	Kg
5	Plastik Pembungkus	500	Lbr
6	Tali Rafia	10000	kg
7	Kayu Bakar	850000	Rit
8	Borongan	5000	bal
9	Harian	84000	hari
10	Bonus	1500	bal
11	Listrik	25000000	rp/bln
12	Pemakaian Solar	120	ltr
13	Transportasi	180000	rit
13	Harga Solar	5500	ltr
13	Muatan Colt Diesel	400	bal

Table 4.28 Formula 1

NO	BAHAN	KEBUTUHAN BAHAN	SATUAN	RATA-RATA WAKTU	SATUAN	HASIL	SATUAN	KEBUTUHAN BAHAN/pcs	SATUAN
1	Sludge Paper	21	kg	12	menit	156	pcs	0,13	kg
2	Avalan Karton	4,50	kg					0,03	kg
3	Avalan Gelondongan	4,5	kg					0,03	kg
4	Duplek								

Table 4.29 Formula 2

NO	BAHAN	KEBUTUHAN BAHAN	SATUAN	RATA-RATA WAKTU	SATUAN	HASIL	SATUAN	KEBUTUHAN BAHAN/pcs	SATUAN
1	Sludge Paper	21	kg	12	menit	130	pcs	0,16	kg
2	Avalan Karton	3	kg					0,02	kg
3	Avalan Gelondongan	3	kg					0,02	kg
4	Duplek	3	kg					0,02	kg

The following is the calculation of the estimated cost of egg tray production for PT. Sinar Era Box Gresik:

Table 4.30 Calculation of raw materials

NO	BARANG	KEBUTUHAN	BIAYA/PCS
1	Sludge Paper	0,13	53,85
2	Avalan Karton	0,03	115,38
3	Avalan Gelondongan	0,03	43,27
4	Duplek	0,00	0,00

Perhitungan KEBUTUHAN/PCS Formula 1 :

Bahan	Kebutuhan bahan formula 1 / Hasil :		
Sludge paper	21	156	= 0.13
Avalan karton	4.50	156	= 0.03
Avalan gelondongan	4.50	156	= 0.03
Duplek	0	156	= 0.00

Perhitungan BIAYA/PCS Formula 1 :

Bahan	harga * Kebutuhan/pcs :		
Sludge paper	400	0.13	= 53.85
Avalan karton	4000	0.03	= 115.38
Avalan gelondongan	1500	0.03	= 43.27
Duplek	2000	0.00	= 0.00

Table 4.31 Calculation of auxiliary goods

NO	BARANG	BIAYA/PCS
1	Plastik Pembungkus	7,14
2	Tali Rafia	0,54
3	Kayu Bakar	37,95

Perhitungan BIAYA/PCS :

Bahan	harga		kebutuhan		pcs eggtray	
Plastik pembungkus	500		/		70	= 7.14
Tali rafia	(10000	*	30)	/	560000	= 0.54
Kayu bakar	850000	/	(3	*	7466)	= 37.95

Table 4.32 Calculation of labor costs

NO	KLASIFIKASI	JML PERSON	EST OUTPUT/BLN	BIAYA TENAGA KERJA/PCS
1	Borongan	30	700000	89,29
2	Harian	34		127,50
3	Bonus	34	8000	0,63

KAPASITAS PRODUKSI

TARGET MINIMAL / BLN	10000	BAL
HARI KERJA EFEKTIF	25	HARI

Perhitungan BIAYA/PCS :

Klasifikasi	Jumlah person	Harga	pcs eggtray	
Borongan	30	(10000 bal * 5000)	/ 560000	= 89.29
Harian	(34 *	25 hari * 84000)	/ 560000	= 127.50
Bonus	34	((1500 * 8000)/34)	/ 560000	= 0.63

Table 4.33 Foh cost calculation (factory overhead)

NO	JENIS	BIAYA/PCS
1	Listrik	44,64
2	Solar	1,18
3	Transportasi	6,43
4	Lain-lain	52,78

Perhitungan BIAYA/PCS :

Jenis	Harga		pcs eggtray	
Listrik	25000000	/	560000	= 44.64
Solar	(120 * 5500)	/	560000	= 1.18
Transportasi	180000	/	(400 * 70)	= 6.43

Lain-lain (53.85 + 115.38 + 43.27 + 0.00 + 7.14 + 0.54 + 37.95 + 89.29 + 127.50 + 0.63 + 44.64 + 1.18 + 6.43) * 10% = 52.78

Hasil harga pokok produksi :
53.85 + 115.38 + 43.27 + 0.00 + 7.14 + 0.54 + 37.95 + 89.29 + 127.50 + 0.63 + 44.64 + 1.18 + 6.43 + 52.78 = 580.87

4.4 Figure analysis results in the form of diagrams

Flowchart calculation of the current cost of production at PT. Sinar Era Box Gresik has the following workflows.

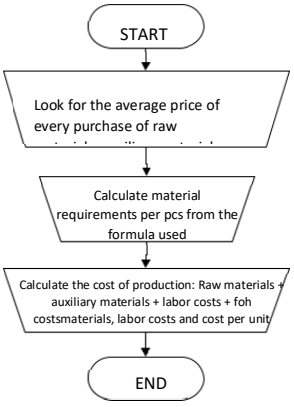

Figure 4.1 Flowchart that is running

4.5 System flowchart

Flowchart is a graphical depiction of the steps and sequences of procedures of a program. Flowcharts help analysts and programmers to solve problems into smaller segments and help analysts other alternatives in operation. Flowcharts usually facilitate the resolution of a problem, especially problems that need to be studied and evaluated further.

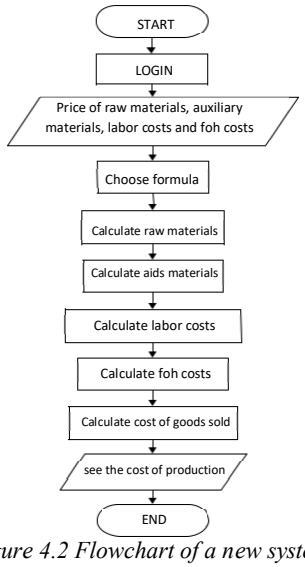

Figure 4.2 Flowchart of a new system.

4.5.1 DFD Level 0

DFD Level 0 is a general depiction of the system, context diagram illustrates the external entity with the system in general.

An explanation of DFD level 0 images is as follows:

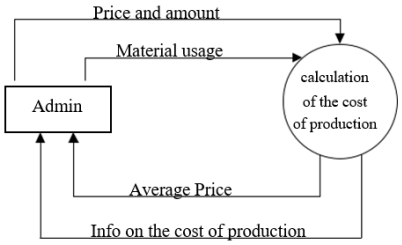

Figure 4.3 Flowchart DFD Level 0

Admin can input the price and quantity of purchases, do the calculation of the cost of production, see the cost of production, see a graph of the cost of production.

4.5.2 DFD Level 1

DFD Level 1 is an advanced process of context diagram, in level 1 the data are explained in more detail.

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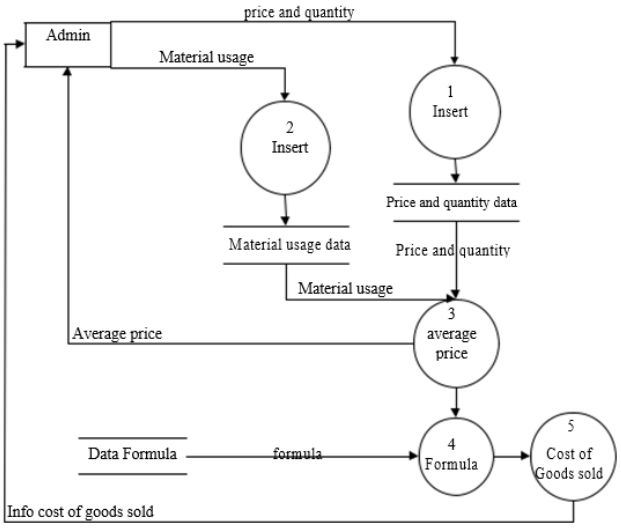

Figure 4.4 Display DFD Level 1.

Explanation of DFD level 1 images is as follows:

a) Insert
Admin enter the price and number of purchases to determine the average price obtained from each purchase price of all goods concerned with the calculation of the cost of production.
b) Insert
Admin includes the use of materials to reduce the stock of existing materials so that the remaining available ingredients can be monitored and produce an average price of the remaining material stock.
c) Average price
Admin get the average price which will be used as a benchmark price to calculate the cost of production.
d) Formula
Admin choose the formula to calculate the cost of production, between formula 1 and formula 2 has the cost of production respectively.
e) Cost of goods sold
Admin performs the calculation of the cost of production of each formula with the average price obtained.

4.5.3 Entity Relationship Diagram (ERD)

Entity Relationship Diagram is a collection of tables, where each table has a unique name and structure. In each table, each data record organized in the same structure has a key field that will be the link between the existing tables and those related to each other. This system has 5 entities / tables namely, users, formula, hp_produksi, hp_bahan_dipakai dan material.

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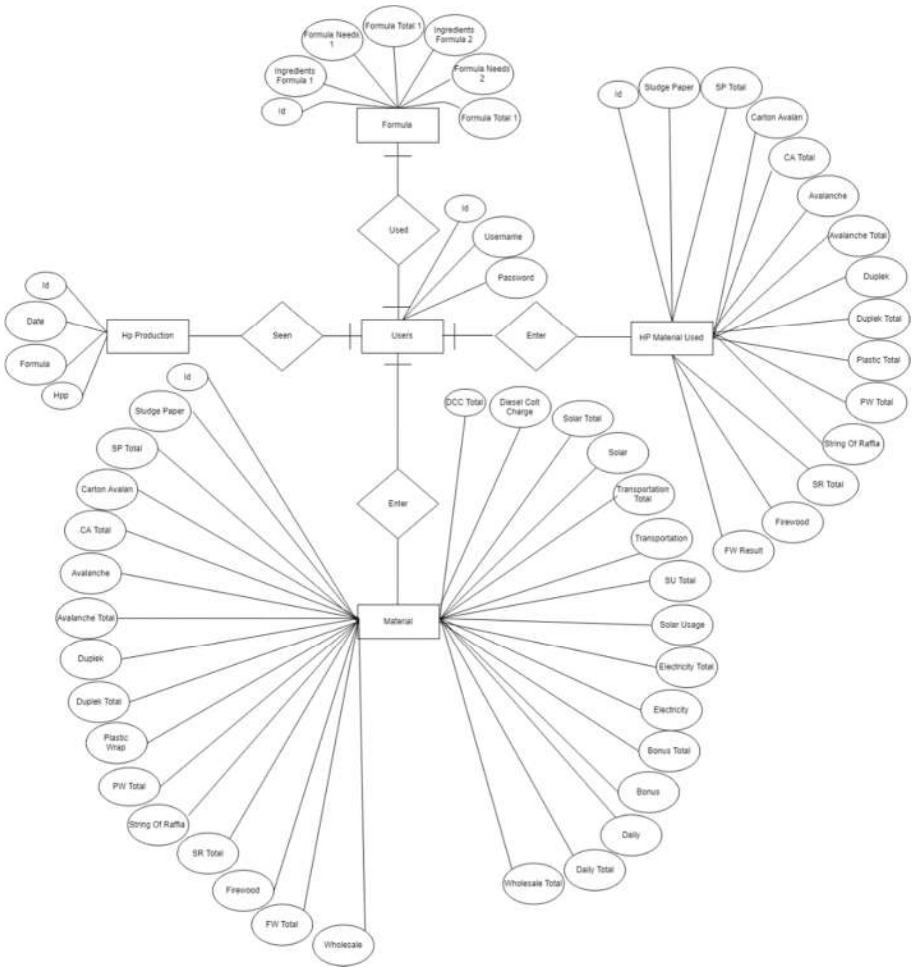

Figure 4.5 ERD cost of goods manufactured system.

4.6 Interface Design

The next stage is the display design in the calculation of the cost of production of PT. Sinar Era Box Gresik. Display design is one of the important criteria of the interface. Because a user is usually interested in trying an application program by first being interested in a view that is in front of his eyes.

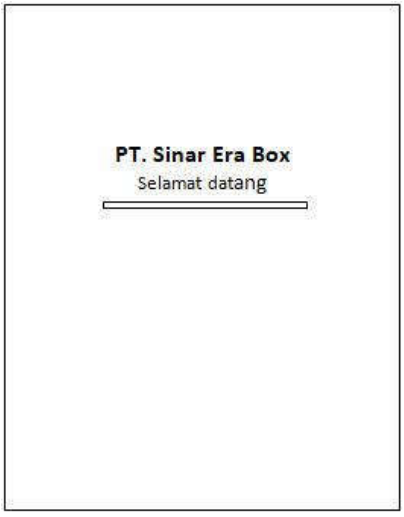

Figure 4.6 Starting Application

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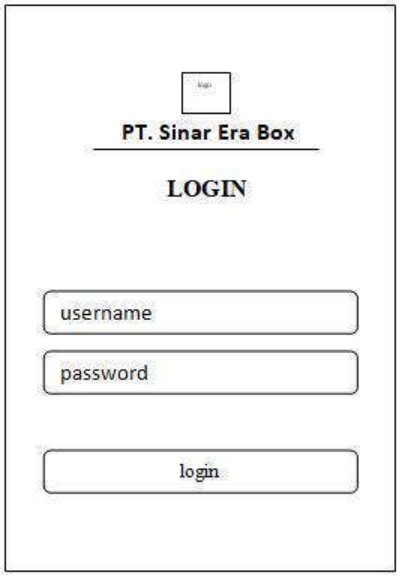

Figure 4.7 Login Display

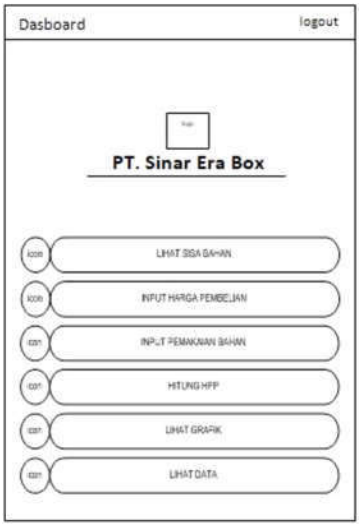

Figure 4.8 Dashboard Login

Figure 4.9 Display See Remaining Material

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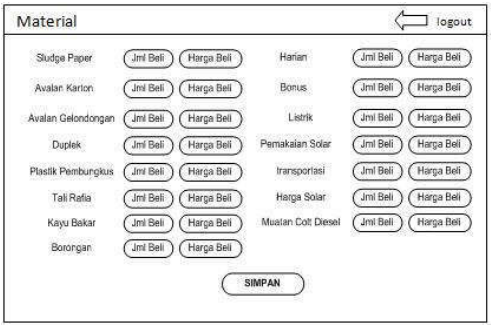

Figure 4.10 Display Input Purchase Prices

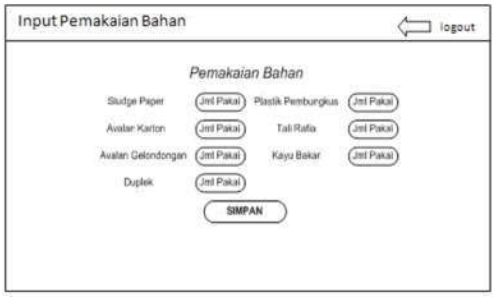

Figure 4.11 Display of Material Usage Input

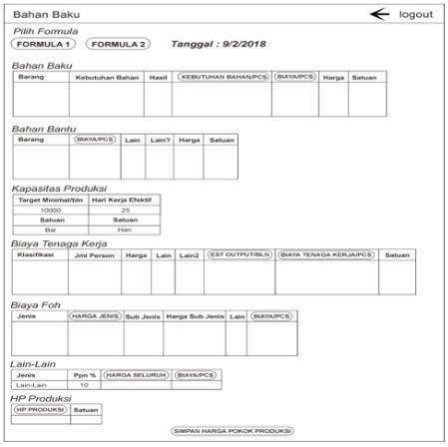

Figure 4.12 Display Calculate COGS

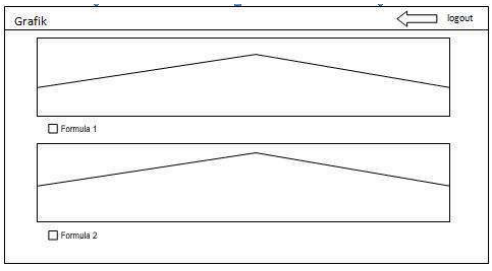

Figure 4.13 Display View Graph

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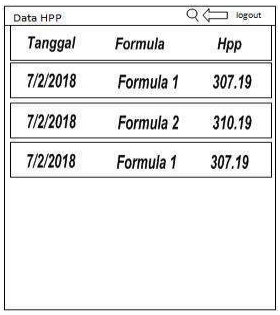

Figure 4.14 Display View Data

V SYSTEM IMPLEMENTATION

5.1 Implementation

Implementation is a procedure that is carried out to complete a design that is in an approved system design document and test, install, start, and also use a new system or an improved system. Therefore the implementation can be said as part of the design development stage into a program code, where in the beginning the specification of hardware and software in the program will be implemented. In this chapter is the implementation of the design results into an application calculation of the cost of production of PT. Sinar Era Box is android based using MySQL database.

5.2 System Used

The following is the hardware that is used along with the specifications needed to be able to use the calculation of the cost of goods manufactured by PT. Sinar Era Box is android based.

The minimum specifications used in the gadget are as follows:

1) Operating System: Android 4.0.3 (IceCreameSandwidch)
2) CPU: 600 MHZ
3) Memory: 160MB
4) RAM: 384MB
5) Screen Dimensions: 240x320, 4.5 inches
6) Input: Capacitive touchscreen

5.3 Application Implementation and How to Use

At this stage will be shown how to use the application of cost of goods manufactured calculation of PT. Sinar Era Box is android based. The way to use it is as follows:

After the installation process is complete, to run the calculation of the cost of goods manufactured by PT. This Android-based Sinar Era Box is to select the TA SEB Project icon on the Android home smartphone that has the application installed. The following are the display stages after the application is run:

1) The first time that will appear after the TA SEB Project application is opened is the splashscreen display. As below:

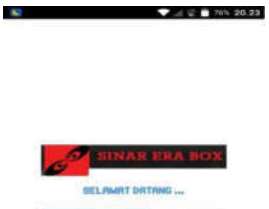

Figure 5.1 Display splash screen for TA SEB Project

2) After splash display the login screen appears. As below:

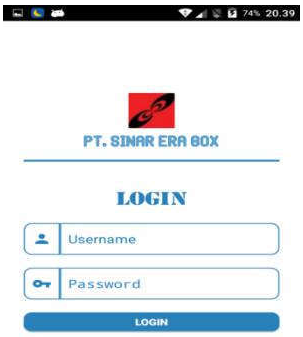

Figure 5.2 Display the TA SEB Project login application

3) Enter your Username and Password to enter the initial menu. Like the picture below:

Figure 5.3 Initial view of TA SEB Project

4) Select "Lihat Sisa Bahan" to see the remaining available ingredients. Like the picture below:

Figure 5.4 Display See Remaining Material

Then a table of raw materials and auxiliary materials will appear to find out the remaining raw materials and auxiliary materials remaining.

5) Select "Input Purchase Price" to input materials if there is a new purchase. Like the picture below:

Figure 5.5 Display inputting materials

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Then the form will appear to fill the newly purchased material if there is a purchase. If a purchase transaction occurs, fill in the form concerned, this form does not have to be filled in all. If you've clicked the save button below if it's scrolled.

6) Select "Input Material Usage" to input the amount of material usage if there is a usage. Like the picture below:

Figure 5.6 Display Input Material Use

Then the form will appear to fill the material used if there is usage. If usage occurs when processing materials, enter the amount of material used in the respective material units. If you have clicked the save button below.

7) Click the back button, and select "Calculate HP" to calculate the cost of the item, click select formula to enter the formula. Like the picture below:

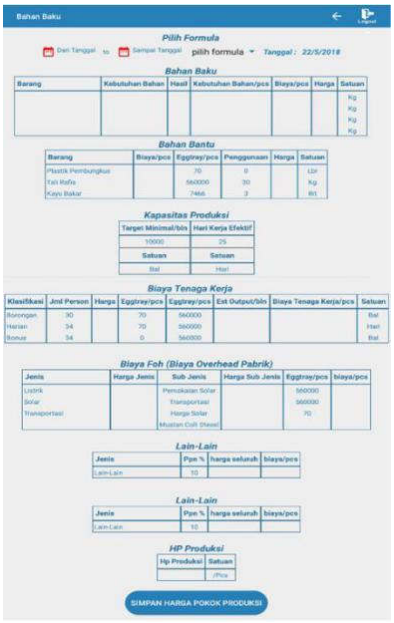

Figure 5.7 Display calculation hpp.

If you have calculated the hpp, don't forget to save it.

8) click the back button, and select "Lihat Grafik" to see the graph of the cost of production. Like the picture below:

Figure 5.8 Graph Display.

9) Click the back button, and select "View Data" to see what data HPP and formula are used. Like the picture below:

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Figure 5.9 Display view data.

VI CONCLUSION

Based on the results of research and discussion that has been done, it can be concluded that:

a) Android-based eggtray cost calculation system using the moving average method (Case Study of PT. Sinar Era Box Gresik), runs well, where the results of the testing of the entity's functions run well.
b) The user of the Android-based eggtray cost calculation system is the admin.
c) Based on the results of functional testing, it can be seen that the calculation of production cost at PT. Sinar Era Box Gresik is in accordance with the moving average method. In addition, the final results achieved are no different from the results of manual calculations.

VII SUGGESTION

Based on the research results and conclusions, suggestions that might be useful for the calculation of the cost of goods manufactured at PT. Sinar Era Box Gresik are as follows:

a) The application of the system will run well and smoothly if all relevant parties support the application of the cost of production calculation system.
b) The system for calculating the cost of production must always be analyzed whether the system is still feasible or not to be used, so that it can be known whether or not the development or replacement of an existing system needs to be carried out in order to meet the needs of the cost of goods manufactured calculation program of PT. Sinar Era Box Gresik.

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