

Study on Grievance and Grievance Handling in Auto Tech Technology

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Abstract

The world of embedded system faces many challenges. Due to availability of several sections of modern applications in the present era of technology, today's demand is very high performance from systems but with minimum resources. Embedded systems are also known as real time systems since they respond to an input or event and produce the result within a guaranteed time period. Usage of RTOS will enable us to break the complex system into simpler tasks without disturbing the inter task timing problems. Embedded systems require only the basic functionalities of an operating system in real-time environment- a scaled down version of an RTOS. It demands reliability and the ability to customize the OS to match an application's unique requirements. But, due to the advancements in technology, we need an open source environment i.e. Linux which has the capability to provide reliable and flexible configuration to any embedded application in the next generation of embedded system design. Linux offers powerful and refined system management facilities, it is a rich tool of device support, an excellent status for reliability, robustness and broad documentation. In this paper, we try to summarize some current trends in embedded systems design and point out some of their environment characteristics, such as RTOS and Linux platform which can provide a flexible and efficient ground for satisfying the area, performance, cost, and power requirements of many embedded systems.

KEYWORD: RTOS, Embedded Linux, Embedded processor, ASIC

INTRODUCTION

An embedded system combines mechanical, electrical, and chemical components along with a computer, hidden inside, to perform a single dedicated purpose. There are more computers on this planet than there are people, and most of these computers are single-chip microcontrollers that are the brains of an embedded system. Embedded systems are a ubiquitous component of our everyday lives. We interact with hundreds of tiny computers every day that are embedded into our houses, our cars, our bridges, our toys, and our work. As our world has become more complex, so have the capabilities of the microcontrollers embedded into our devices. Therefore the world needs a trained workforce to develop and manage products based on embedded microcontrollers.

Embedded systems are a combination of hardware and software where software is usually known as firmware that is embedded into the hardware. One of its most important characteristics of these systems is, it gives the o/p within the time limits. Embedded systems support to make the work more perfect and convenient. So, we frequently use embedded systems in simple and complex devices too. The applications of embedded systems mainly involve in our real life for several devices like microwave, calculators, TV remote control, home security and neighborhood traffic control systems,

etc. Please follow the below link for **Embedded system basics; block diagram, types, and applications**.

Modern embedded systems are often based on micro-controllers. A micro-controller is a small computer on a single integrated circuit which contains a processor core, memory, and programmable input and output peripherals. As embedded system is dedicated to perform specific tasks therefore they can be optimized to reduce the size and cost of the product and increase the reliability and performance.

70% of intelligent computing devices are surrounding us? One of the facts is our world will connect to more than 50 billion devices by 2020. **Embedded System** is also known as an integrated system due to its combination of hardware and software (also known as *Firmware*). Many of the newbie's want to know the working of the embedded system and its development life cycle.

An embedded system is an application-specific system designed with a combination of hardware and software to meet real-time constraints. The key characteristics of embedded industrial systems include speed, security, size, and power. The major trends in the embedded systems market revolve around the improvement of these characteristics.

To give context into how large the embedded systems industry is, here are a few statistics:

- The global market for the embedded systems industry was valued at \$68.9 billion in 2017 and is expected to rise to \$105.7 billion by the end of 2025.
- 40% of the industrial share for embedded systems market is shared by the top 10 vendors.
- In 2015, embedded hardware contributed to 93% of the market share and it is expected to dominate the market over embedded software in the upcoming years as well.
- On the other hand, the global embedded systems market is set to reach \$234B by 2020 as per global industry analytics, owing to increased growth in production and consumer wearables and electronics.
- As the chaos around upcoming embedded technologies fail to calm down, companies need to plan a clear breakthrough with the right partner. Here are quick insights on trends set to stir the landscape of embedded development. When the organization fails to satisfy the employee needs, he develops a feeling of discontent or dissatisfaction. The feeling of discontent whether expressed or not, valid or not, arising out of anything connected with the company which an employee thinks, believes or even feels to be unfair, unjust or inequitable. Since there are such situations in every organization they must follow a proper grievance handling system by which the company can effectively minimize and eliminate the source of an employee's grievance at the earliest. The proper implementation of grievance handling procedure ensures that the problems of the employees are recognized and appraised in a fair and timely manner.(Dr. Rachna Sharma, ISSN 2250-0758).

A. Statement of the problem

With the rising demand for connected devices, embedded systems need to work with heterogeneous devices and adapt to different networking architectures to cope-up with new functionalities and performances in the real-time environment. Due to this situation of increasing technology adoption and deployment of new applications, embedded

system designers face several problems in terms of flexibility while developing embedded IoT systems such as:

1. Problems in ensuring smooth integration of new services
2. Difficulty in adapting to new environments
3. Frequent changes in hardware and software facilities
4. Issues in packaging and integration of small size chip with low weight and lesser power consumption
5. Carrying out energy awareness operations, etc.

The Problems are also with testing an Embedded System Design that ensuring a reliable product design, conducting in-depth testing, verification, and validation is another challenge, for example (a)**Embedded Hardware Testing:** This is similar to all the testing types where embedded developers use hardware based test tools. This refers to the embedded hardware tested for the system's performance, consistency, and validation as per the product requirement.(b)**Verification:** Ensuring whether functional verification has been implemented correctly or not.(c) **Validation:** Referring to ensure whether the product matches with the requirement and passes all the quality standards.

Apart from that the organization also face issues like Increased Cost and Time-to-Market Apart from flexibility and security, embedded systems are tightly constrained by cost. In embedded hardware design, the need originates to derive better approaches from development to deployment cycle in order to handle the cost modeling or cost optimality with digital electronic components and production quantity. Hardware/software code-designers also need to solve the design time problem and bring embedded devices at the right time to the market. From the management side the reviews and grievance are settled through electronic media and assurances are given for rectification. The collected data is presented in the form of tables and data was analyzed through the application of quantitative metric like ANOVA.

B. Objectives of the study

1. The analyze the respondents awareness of causes of grievances and handling from the management side.
2. To study interpersonal drivers causing and handling grievance.
3. To analyze respondents awareness of objectives of objectives of grievance and handling.
4. To investigate the reasons for dissatisfaction.

C. Hypothesis of the study

1. Respondents are spoke of sophisticated technology up gradation.
2. There are no inter personnel drivers causing grievances.
3. Respondents spoke about tough survival in the market.
4. Respondents are not aware of impact of grievance.

2. Research Design

The present study considers both the primary and secondary data. The researcher has used descriptive research to identify the reason behind grievance and grievance handling and analytical type to analyze the existing facts from data collected from employees of auto Tech system , an Embedded system, defence firm Alpha Design Technologies. Auto TECH do not support but also support provide products and customized solutions

for On-board Electronics, Automated Test and Data Acquisition Systems for Defense & Aerospace and other mission critical applications. unveiling its own facility to make unmanned aerial vehicles (UAVs) Auto TEC specializes in design & development, prototyping, qualification and manufacturing to military standards.

A. Sample of the study

The total population of Auto tech system is Bengaluru unit 700 and 600 sample is selected for the study purpose. The basis of 600 sample decision is based on Bill Godden's sample formula. Sample Size – finite population (where the population is less than 50000)

POP = population size = 700

Note: calculate the sample size using the infinite population formula first. Then use the sample size derived from that calculation to calculate a sample size for a finite population.

Sample size using infinite population

$$SS = ss / (1 + (ss - 1) / pop)$$

$$Ss = Z^2 \times (p) \times (1 - p) / c^2$$

Ss = sample size

Z = z value A (e.g 1.96 for a 95% confidence level)

P = percentage of population picking a choice, expressed as decimal a

C = confidence interval, expressed as decimal (e.g 0.04 = +/-4%)

A = values (cumulative normal probability table) represent the probability that a sample will fall within a certain distribution)

$$= 3.8416 \times 0.525 / 0.0016$$

$$= 0.9604 / 0.0016 = 600.25$$

Now new SS = ss / (1+(ss-1/pop))

$$600 / (1+(600-1/700))$$

$$= 600 / 1 + 599/700$$

$$= 600 / 1+0.8557$$

$$= 600 / 1.8557$$

$$= 32.3.3 \text{ or } 400$$

Sample Table

Selected category of employees	No of sample selected
Sales and marketing department	300
Engineering department	150
Engineering division	50
General affairs	25
Corporate planning department	25
Assistant manager	50
Total	600

A. Universe of the study

The present study is confined only to Bengaluru. These are entity engaged in the business of defence aerospace. These are popular known embedded system. Further, Bengaluru is the fastest growing center and popularly called as 'Silicon Valley'.

B. Sampling Technique

Convenient sampling technique was adopted, and data has been collected using a structure questionnaire. 600 sample was fixed for the study as suggested by Bill Godden (2004).

C. Sources of data

The present research work both primary and secondary sources. The primary data was collected by administration a well drafted structured questionnaire which was administrated a well drafted structured questionnaire which was administrated as schedule after considering non-response and possible delays. Before administration questionnaires as schedule a pilot the study was conducted. For this purpose, 20 respondents were chosen and requested to provide valuable answers for the questions. The light of experience of collecting among the sample respondents 450 questionnaires were received and 46 were not usable ones and forms a success of 96.50%.

The secondary sources were journals, books, and different websites.

D. Questionnaire design

The questionnaire framed for this purpose is a structure one and all the questions to be asked are known in advance. The scales used to evaluate questions are:

- 1) Descriptive Scale (Yes or No)
- 2) Likert 5- or 4-point scale.

E. Statistical tools and techniques

ANOVA statistical tools is used to interpret the data. ANOVA measures the quantum of variation of helps as to test the data scientifically.

3.REVIEW OF LITERATURE

Dr.V.Mohana sundaram,N.Saranya,(2013) in his article “Employee Grievance” organisation are made up of peoples and functions through people without people organisation cannot exist. The resources of men, money, material and machinery are collected, coordinated and utilized through people in the organisation. It is through the combined effort of people that materials and monetary resources are effectively utilized for the attainment of common objectives and goals without united human effort no organisation can achieve its goals.

Sonika Sharma, Niti S harma, (2011) in his research paper entitled “ Listening Skills: A prerequisite for Grievance Handling “ The ability to be an active listener is too often taken for granted. HR professionals play pivotal role in the IJRTI1705049 International Journal for Research Trends and Innovation (www.ijrti.org) 274 organisation. They inject a feeling of confidence and belief among the staff members by listening and solving their issues and concerns. Employee grievances are essentially human problems,real or imaginary

Lewin and Peterson (2007)found a positive relationship with grievance procedure structure and grievance rates. They also found higher grievance rates under procedures that include provisions for expedited grievance handling. It was found that provisions allowing oral presentation of grievances was related to lower rates of written grievances, and screening of potential grievances was related to lower rates of written grievance, and screening of potential grievances by a committee or other union officials was associated with lower grievance rates. The number of steps in the grievance procedure and the length of time allowed for filing a grievance were not related to grievance rates.

In the book of, “Strategic grievance handling” Margolies, K. (2004) Steward Update, 15(1).C B Mamoria state the alteration between dissatisfaction, grievance and complaint. Discontent raises when an individual is not cheerful in his job and when the organization does not identify the individual goals. This dissatisfaction leads to grievances when an individual discusses it with an additional employee in the organization. When the dissatisfaction associated to the work is brought to the announcement of the management, complaint becomes a grievance.

Survey finding

Table -1 highlight data about no positivity of employee for applying HR practices on the employee productivity out of 600sample respondents 340 strongly over the statement listed on the table driving no positive relation for applying HR practices on the employee productivity, followed by 188 agree, 27 stood neutral, 24 disagree and 21 strongly

disagree. Out of 340 respondents who said strongly agree, 80 said about ineffective communication between management and employee followed by 60 said about indiscipline among employee, 35 said about not investigating employee complaints, 35 said about no conflict resolution measures taken, 40 said about not handling workplace issues effectively. 40 about unfair redressal of employee grievance by the management, 45 about lack of transparency in communication. Out of 188 respondents who strongly agree workplace issues is not handled properly 30, followed by 28 agree with act as neutral, 35 said about employee turnover, followed 25 said about neutral on less self-awareness, about 30 strongly disagree with getting in dispute with co-workers. Out of 27 respondent 5 said about workplace issues is not handled effectively. Followed 3 with not investigating employee complaints. followed 2 said about no opportunities to express opinion. ANOVA statistical metric fails to accept H₀ and accept H₁. Therefore, it is concluded here that there exists significant variation in the data and respondents are aware of causes of grievance from management side.

Table -2 highlights data about inter drivers not satisfied employee relation to increase productivity 328 respondent out 600 have stated highly causes, 163 causes, 69 neutral, 25 not causing. Out of 328 who said highly causes 90 said about less improvised steps taken for employee skill and training, 20 said about providing of acknowledgement to employee 10 said about inadequate technology used in the organization, 06 said about no transportation facilities, 05 said about late hours of work, out of 163 respondents who stood for less improvised employee productivity 45 said about inappropriate behavior of employee towards the new employee, 28 said about no cross – functional alignment, 25 said about inconsistency 05 spoke about communication gap among employee 02 said about no encouragement for works. Out of 69 who stood neutral 30 said about less improvised decision making process 10 said about poor supervision, 25 said about no encouragement to workers, 05 said about lack of delegation 02 said about lack of information from management side. Out of 25 stood for highly not causing 48 said about improper training, 35 said about not being transparent from management side, 04 said about poor communication, 02 said about lower staff turnover, 02 said about employee less understanding with management, 02 said about not upgrading opportunities. ANOVA quantitative metric fails to accept H₀ and H₁. Therefore it is concluded here that there exists significant variation in the data and respondents are aware improvising employee relation to increase workplace productivity.

Table -3 reveals respondents' impact of objectives of employee relation to improve workplace productivity. Out of 600, 320 said highly aware, followed 195 aware, followed 39 neutral, followed 46 somewhat. Out of 155 respondents who said highly aware 85 said about providing good relationship with co-workers, 45 said about clarity from management side, 10 said about good employee leads to company growth, out of 156 respondents who stood for agree followed 75 said about legal issues of the management causes increase in employee productivity and good relation of employee with their subordinates. Followed 60 said about receiving necessary information for communication to do job from senior management, 09 said about complimenting for the good work, 12 said about regular hike in salary and incentives. Out of 138 respondents who stood neutral followed 75 stood for providing opportunities to express opinion, followed 45 said about regular hike in salary, 06 said about colleagues are pleasant and

co-operative, followed 12 said management encouragement and help in career development. Out of 119 respondent who stood for strongly disagree followed 65 stood for providing ample resources to employee, followed 40 stood for helps to finish the work in time, 09 said about adequate training and direction received from management side, 05 said about fair treatment of employee by the management side, ANOVA quantitative metric fails to accept H0 and H1. Therefore, it is concluded here that there exists significant variation in the data and respondents are aware of objectives of impact of employee relation to improve employee productivity.

Table -4 information about correlation between the working condition and productivity of employee in tours and travels. Out of 600 respondent who stood for 133 strongly agree, followed by agree 96, neutral 71, somewhat agree 82. Out of 133 respondent who stood for strongly agree 75 said about lack of supervision, followed 45 said about providing clarity among employee relating to the organization. 10 said about gives not providing necessary information related to organization, 03 it helps to provide good relationship with co-workers. Out 96 respondent 45 agree said about lack of understanding of employees with management, followed 25 said about less motivation, 21 said about not being transparent of top management to their workers, 05 said about lack of delegation. Out of 71 respondents neutral followed 35 said about lower staff turnover followed 20 said about inconsistency, 10 said about inadequate technologies, 06 said about lack of acknowledgement, out of 82 who stood for somewhat agree 48 said about less leadership, 24 said about no proper equipment, 06 said about no upgraded opportunities, 04 said about less understanding with management. ANOVA quantitative metric fails to accept H0 and accept H1. Therefore it can be concluded have that there exist significant variation in the data and respondents are correlation between the working condition and productivity of employee in tour and travel industry.

Conclusion

So in simpler words we can conclude that Grievance is such a situation which leads to dissatisfaction among the workers working in an organization which can be due to many reasons such as dissatisfaction related to working conditions, management policy, violation of rules and regulations etc. And if these grievances are not heard and redressed properly can lead to various industrial disputes like lockouts, strikes, boycott, gherao etc. So in order to avoid such conditions every organization has its own grievance handling procedure and a proper grievance handling procedure helps in maintaining good industrial relations between management and workers. Trade unions formed in organizations also play a vital role in promoting and protecting interests of workers and thus maintaining cordial relations between workers and management of that organization. If in case, industrial disputes are not settled easily then they are settled through various measures like conciliation, arbitration etc. So Keeping in view the general grievance and grievance handling procedures it is found that auto tech is also having a set grievance handling procedure in its organization but through the feedbacks being received through the above tables it can be concluded that many unskilled workers in comparison with the skilled workers are not very much aware about the grievance redressal committee present in auto tech , how it works and how it can be helpful to them and due to their ignorance only they are not satisfied with the redressal committee.

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1 Respondents are aware of sophisticated technology up gradation

Drivers ASTUPG	SA	A	N	DA	SDA	T
MSME schemes	70	35	7	3	6	121
Promise kept	45	28	3	2	2	88
LTIPP	30	20	5	1	3	59
The F- INSAS	50	40	2	1	1	94
Anti-Tank Guided Missiles	58	34	4	2	4	102
Anti-Tank capability of Infantry Battalions.	35	45	4	2	3	89
Digital Battlefield	30	10	2	3	2	47
Total	318	212	27	12	31	600

Source: Field survey

NOTE: SA- Strongly Agree, A- Agree, N- Neutral, DA- Disagree, SDA- Strongly Disagree.

HYPOTHESIS

H0 aerospace/ embedded system does not provide technology when compare to Advanced countries.

Reject

H1 aerospace/ embedded system does provide sophisticated technology when compare to Advanced countries

Accept

ANOVA Table

Source of Variation	SS	DF	M-S	F- ratio	5%F-limit (from the F-table)
Between sample	2800	(5-1) =4	2800/4 =5.910	2800/473.7 4,30 = 2.09	
Within sample	14211	(35-5) =30	14211/30 = 473.7		
Total	17011	(35-1) =34			

ANOVA Analysis:

The calculated value being 5.910 higher than the TV= 2.64 @5% level of significance with df =v1 = 4 and v2 =30 fails to accept H0 and accept H1. Therefore, it is concluded here that there exists significant variation in the data and respondents are aware of sophisticated technology .

TABLE -2: Interpersonal drivers causing grievance

Drivers of Redressal Mechanism	HC	C	N	NC	HNC	T
Interpersonal difference	80	20	10		10	6 126
Between employee						
Violation of employee	65	25	6	5	9	110
rights						
Favoritism and Nepotism	60	20	10	3	3	105
by management towards						
selected employees						
Top management selected	40	30	10	2	6	83
Employee get promotion						
Aggressive behavior	38	24	2	5	6	71
Service unavailability	20	20	5	2	2	49
Staff Misbehavior	30	20	2	1	3	56
Total	333	159	45	28	35	600

Source: Field survey

NOTE: HC- highly causes, C- Causes, N- Neutral, NC – Not Causes, HNC- Highly Not Causes.

HYPOTHESIS

H0 customer grievance redressal Mechanism is not positively related to employee customer satisfaction interpersonal drivers no significant variation on the data. Reject

H1 customer grievance redressal Mechanism is positively related to employee related to customer satisfaction to the interpersonal drivers significant variation on the data. Accept

ANOVA TABLE

Source of variation (from the F- table)	SS	DF	M-S	F-ratio	5%F- limit
Between sample	8024	(5-1) =4	8024/4	2006/772.4	F 4,30
Within sample	23174.2	(35-5) = 30	3023174.2/ = 772.4		
Total	31198.2	(35-1)=34			

The calculated value being 2.5 higher than the TV =2.09 @5% level of significant

With df =v1= 4 and v2 =30 fails to accept H0 and accept H1. Therefore, it is concluded here that there exists significant variation in the data and respondent are aware of redressal from management side.

Table -3 :Respondents spoke about tough survival in the market

objectives of redressal	HA	A	N	SWA	T
lack of flexibility of running application	75	45	9	15	144
frequent changes in hardware and software facilities	60	50	6	12	108
security crisis in embedded system design	57	27	3	6	93
high power dissipation	63	33	6	15	117
increase in cost time –to -time	75	45	6	12	138
Total	330	180	30	60	600

Source: Field Survey

NOTE: HA- Highly Aware, A- Aware, N- Neutral, SWA- Somewhat Aware

Hypothesis

H0: Grievance of embedded system is not positively related to tough survival in the market

H1: Grievance of embedded system is positively related to tough survival in the market

Reject
A

cept

ANOVA Table	SS	DF	M-S	F- ratio	5% F- limit (from the F-table)
Between sample	11160	(4-1) =3	11160/3 =3720	3720/36.375 = 102.26	F(3,16) =3.24
Within sample	582	(20-4) =16	582/16 = 36.375		
Total	11742	(20-1) =19			

Source: Field Survey

ANOVA Analysis

the calculated value being 102.26 higher than the TV = 3.24@ 5% level of significant with df = v1 =3 and v2 =16 fails to accept H0 and accept H1. Therefore, it is concluded here that there exists significant variation in the data and respondents are aware of tough survival of business in market .

Table – 4 Impact on grievance

Impact drivers of grievance	SA	A	N	SWA	T
Interaction with customer	75	42	6	12	135
Sensitizing operation staff	48	24	9	9	90
On handling complaints					
Resolution of grievance	45	21	3	6	75
Suggestion box for lodging	60	18	3	6	87
Complaints					
Customer service committee	54	27	6	12	99
Of the board					
Office to handle complaints	60	36	9	9	114

Total 342 168 36 154 600

Source: Field survey

NOTE: SA- Strongly Agree, A- Agree, N – Neutral, SWA- Somewhat Agree

Hypothesis

H0 impact of grievance is not positively related to the impact on service quality on overall grievance redressal for customer satisfaction has no significant variation on the data.

H1 impact grievance is positively related to the impact on service quality on overall grievance redressal for customer satisfaction has no significant variation on the data.

ANOVA Table

Source of variation	SS	DF	M-S	F- Ratio	5%F-limit (from the F- Table)
Between sample	9900	(4-1)=3	9900/3 =3300 = 61.45	3300/ 53.7	F 3,20 = 3.10
Within sample	1079	(24-4)=20	1074/20 = 53.7		
Total	10974	(24-1)= 23			

ANOVA Analysis

The calculated value being 61.45 higher than the TV = 3.10 @ 5% level of significance with $df = v_1 = 3$ and $v_2 = 20$ fails to accept H0 and accept H1. Therefore it is concluded here that there exists significant variation in the data respondents are aware of impactness of redressal