Research Framework: Planning and Design of Bidirectional (Dual) Display Unit

Manisha. A. Vhora
Research Student, SIOM, Pune,

Dr. Dhananjay T. Mandlik
Research Guide, SIOM, Pune

Abstract: Macro and Micro technology management helps to grow the economic efficiency. A prototype Bidirectional display unit itself is a captivating display technology is the global era potential for the interface technology. The use of multiple physical display devices, increases the area available for computer programs running on a single computer system. The use of any two such displays is called dual display, dual screen or dual monitor. Optimum utilization can be done by saving energy with fullest or maximum efficiency for dual view display unit. To increase the portability between users and clients or professionals dual display unit will play an important role. With this users will be more accessible, connected to the clients or other professionals which will gives them flexibility, feasibility for sharing data between the applications.

Keywords : Macro, Micro technology, Bidirectional display

1. Introduction:

Technology is the key aspect of scientific and engineering growth of an organization.Technology management incorporates and is concerned with devising of implementing from strategies, planning of policy at the firm level and thereby catches the attention for decisions and actions at each level. The main level of technology management is - Macro and Micro technology management. It helps to grow the economic efficiency.

Researcher has covered a broad overview and impacts of technology management with respect to computer era.A prototype Bidirectional display unit itself is a captivating display technology that immediately generates interest and excitement in the number of professions.Multi-monitor is also called multi-display or multi-head.

It is the use of multiple physical display devices, such as monitors, televisions, and projectors, that increases the area available for computer programs running on a single computer system. The use of any two such displays is called dual display, dual screen or dual monitor. A multiple monitor setup increases the net display area of a system and can be an inexpensive way of improving computer usage. The monitors used for multi-monitor can be of different types (LCD or CRT) and sizes. The operating system manages the monitors' resolutions independently.To increase the portability between users and clients or professionals dual display unit will play an

important role. With this users will be more connected and will be accessible to clients or other professionals which gives them flexibility, feasibility for sharing data between the applications.

2. Significance of the Study

Technology has changed every dimension of human life and having its positive impact on society as a whole. There are number of factors that create the technology development structure like Objectives, Decision Criteria, time, constraints and mechanisms. The process of technology development starts with the Generation of ideas, Estimation of market and inputs required, and Execution of projects, Trials and modifications.Researcher feels the need to utilize the present devices like multi monitor, dual display to the fullest extent and with minimum cost trying to come up with the solution that shall significantly benefit the people at large. Optimum utilization can be done by saving energy with fullest or maximum efficiency for dual view display unit with capacity of Information Technology management.

3. Objectives:

i. To provide the knowledge in designing dual display screen.

ii. To Design appropriate information collection procedure for dual display screen.

iii. To determine nature of relationship between various factors associated it.

4. Literature Review:

Review of Literature is searching, analysing and evaluating the different types of information in chosen research area. It interrelate the previous work with present work related to research problem. Literature review is important step in the research process to sequencing the number of steps. It gives idea for development, analysis and implementation. Different aspects of studying literature review gives gap of research and clear ideas for development or implementation. In short Literature review surveys information, synthesizes into parts, critically investigates/ explores the facts with theories and helping to present in a systematized way.

The Main Objective of literature review to find in-depth technical development of display system in terms of hardware history; and development of pseudo code to coordinate presentation system with Graphical user system interface.A literature review-

I. demonstrates a familiarity with Hardware knowledge of display system and establishes coordination with user interfaces

II. summarizes prior research work done in display system and linking with this research work;

III. integrates and summarizing with hardware, software and firmware development ;

IV. Determines other research work of others related to Dual display exhibits this research is a starting point for new ideas.

Researcher reviewed various publications like Books, magazines and newspapers, Periodicals,

Journals, Internet, various search engines and websites.

Technical Background

The first widely developed electronic computing machine popularly known as PC needed display unit. Since the first commercially made display device was the CRT in 1922. CRTs were monochrome and primarily used in oscilloscopesand black and white televisions. After few years, in evolution of Windows generation a full screen pictures was displayed with taskbar at the bottom of the screen. This was a advanced colour cathode tube with improved brightness, resolution and contrast in 1990. Last update of CRT was utilized in the Flat Display in FD Wega series with improvement of magnetic deflection technology.

At the end of the 1990s revolution began a new development of Liquid Display Technology in LCD with use of three transistors behind each grid liquid crystals. This technology produced sharper images and came in a slimmer form with lower radiation emissions in less response time. Later on in 2004 to protect High Definition content of Blue-ray and HD DVD discs High Definition Content Protection with Digital Video Interface in HD-DVI was developed. It produced graphics card with HDCP decoding chip through the DVI interface. This interface provides non-display transferred data to the device.

- **whatis.techtarget.com**[1]**,**this website prints contents as - VDU shows images made by an electronic device computer. Computer practices can be improving inexpensive way like multiple monitor setup increases the net display area of a system. Upgrading multi-monitor consequently helps configuration area display area which is limited by size, resolution and number of monitors.

- VGA splitter will come from a source of video signal distribution into two or more signal. High resolution video splitter is a common application in receiving from a computer video port signal when the amplification, and keep the original signal in the quality of its assigned to two or more high resolution data display device. If a splitter cannot provide the required output, and can be used in conjunction with multiple splitter. If multiple input and is tribute output situation can use matrix switchers[2].

- Increased Productivity use of Multiple Programs Concurrently expending the primary screen for the bulk of work and for other gadgets, Allows for Flexibility, Sharing Data between Applications, Easy to compare work, engage all social media connection, inexpensive, less potential to get off track[3].

- By using dual monitors saving millions is more effective, efficient, and satisfying. This

[1]http://whatis.techtarget.com/definition/video-display-unit-VDU

[2]http://www.szdikl.com/eshownews.asp?id=79

[3]http://www.mauskar.com/index.php/browse-news/11-news/74-top-10-reasons-to- have-dual-monitors-Top 10 Reasons to have Dual Monitors

study is to explore dual monitor practice scenario. For this researcher studied cross-section of roles in workplace tasks like document editing, email and browsing. Also scanned specific roles in domain-specific activities such as programming, technical writing and project management. Two monitors allow users significantly increasing vast information which gives productivity benefits.

- Main need to increase in efficiency and productivity gives designers to develop technology methods which will improve their work flow. Designers and others have common approach is to use multiple monitors. Two or more monitor's usage cans a number of significant advantages to designers. Designers Often Use Multiple Programs Simultaneously which allows for Flexibility, Sharing Data between Applications Can Be Easier, for Easier Comparison improving efficiency and effectiveness and Increased Productivity[4].

- Takayoshi Oshino, SusurnHipasawa and Uxjya Watanabe, Wyohei Ichikawa, OmioGoto[5]. In this experiment results that – The I1 terminal has two CRT displays. First is data display screen which is used to control common screen and Second the source list stored in the RAM which is in Pseudo code and program list. Programmer or assembler practices both displays simultaneously. related reviews of literatures have been referred and during study the following conclusions has been drawn**.**

Dual display unit is captivating display technology that makes interest and excitement in number of professions. Previous studies highlighted the importance and role of Multi View display system which are useful in different sector for managing the big data and gain business advantage. Innovations and studies are going on multi-display, multi-head, multi-monitor dual display devices etc. The basic objective of this study is to prefer controlling and optimum utilization of bidirectional or dual system for display and user perception.

5. Research Methodology

Research is a process of systematically gaining accurate answers to significant and pertinent questions with the practice of scientific methods of collecting and understanding information and data.

Research Statement

As a part of the research this study requires and explores more in depth knowledge. Today's scenarios, we need to utilize the present desktopdevices to the fullest extend with minimum cost. Optimum utilization can be done by saving energy with fullest / maximum efficiency of dual view display unit with capacity of Information Technology management.The researcher has made the statement that designing a prototype of dual display unit will help the regular user to use the display unit in both the way.

Exploratory Research: Exploratory Research is a type of research conducted for a problem that has

[4]http://www.webdesignerdepot.com/2009/05/advantagesanddisadvantagesofworkingwith-multiplescreens

[5]SusurnHipasawaand, Uxjya Watanabe, Takayoshi Oshino, Wyohei Ichikawa, OmioGoto 1979 IEEE "A Microcomputer Based Educational System (MES) With Dual Display",CH1465- 4/79/0000-0442

not been clearly defined. It helps to define the best research design, data collection method and selection of subjects.

Researcher understood that by fundamental nature exploratory research often relies on techniques like secondary research. Secondary research is reviewing available literature and data. Also it has informal qualitative approaches such as discussions with end users, employees, management or competitors. Formal qualitative research is like pilot studies, interviews, focus groups, projective methods.

Researcher has designed Questionnaire and circulated the same to the respondent's shows the interest in innovative development and those inclined to understand the service and provided their opinions and suggestions about the challenges that they face during operations.

Descriptive Research: This is a more in-depth research that answered the question what and how. Descriptive research is used by researcher to 'describe' a situation, subject Behaviour, or phenomenon in Technology Management field with respect to display unit.

Here to study the evolution of display unit, researcher has collected data in structured Questionnaire format from the different users like technical experts, customers, system analyst former searchers contact and exploratory design is used to find the awareness of dual display and extent of bidirectional unit with its characteristics where different types of users are interested to change their perception. In order to achieve above objectives primary and secondary data from technology management field is used for this research. Therefore for this research Descriptive and Exploratory research type of design is adopted.

6. Data Analysis and Interpretation:

6.1 Making Use of Monitor for Display Purpose during Demo

	Frequency	Percent	Valid %	Cumulative %
Do not Agree	6	1.4	1.4	1.4
Neutral	16	3.8	3.8	5.3
Agree	310	74.5	74.5	79.8
Strongly Agree	84	20.2	20.2	100.0
Total	**416**	**100.0**	**100.0**	

Interpretation -

From the above analysis researcher observed that, out of the 416 respondents, 6 respondents i.e. 1.4% didn't agree for use of monitor for display purpose during demo. 16 respondents i.e. 3.8% were neutral on it. But 394 respondents i.e. 94.7% respondents agreed on use of monitor for display purpose during demo, out of them 84 respondents i.e. 20.2% strongly agreed on the use of monitor for display purpose during demos.

Table No.6.2 - Ability to Concentrate on Audience during Demo

	Frequency	Percent	Valid %	Cumulative %
Strongly Disagree	6	1.4	1.4	1.4
Neutral	54	13.0	13.0	14.4
Agree	356	85.6	85.6	100.0
Total	**416**	**100.0**	**100.0**	

Interpretation -

From the above analysis researcher observed that, out of the 416 respondents, 6 respondents i.e. 1.4%

strongly disagreed about the concentration on audience during demo. 54 respondents i.e. 13% stayed neutral about it and 356 respondents i.e. 85.6% agreed on the concentration on audience during demo.

Table No.6.3 – Requirement of an Additional Screen for Laptop / LED during Demo

	Frequency	Percent	Valid %	Cumulative %
Do not Agree	48	11.5	11.5	11.5
Neutral	18	4.3	4.3	15.9
Agree	290	69.7	69.7	85.6
Strongly Agree	60	14.4	14.4	100.0
Total	**416**	**100.0**	**100.0**	

Interpretation –

From the above analysis researcher observed that, out of the 416 respondents, 48 respondents i.e. 11.5% did not agree on the question 'Are you satisfied with the Display of the content in current scenario?' 18 respondents i.e. 4.3% stayed neutral on it. But 290 respondents i.e. 69.7% agreed and 60 respondents i.e. 14.4% strongly agreed that they are satisfied with current situation related to display of the content.

Table No.6.4 – To know if new development in display of the content that is used in current scenario more useful to the users

	Frequency	Percent	Valid %	Cumulative %
Do not Agree	42	10.1	10.1	10.1
Neutral	18	4.3	4.3	14.4
Agree	101	24.3	24.3	38.7
Strongly Agree	255	61.3	61.3	100.0
Total	**416**	**100.0**	**100.0**	

Interpretation -

From the above analysis researcher observed that, out of the 416 respondents, 42 respondents i.e. 10.1% were not satisfied with new development in display of the content in current scenario more useful to the users. 18 respondents i.e. 4.3% stayed neutral about it. 101 respondents i.e. 24.3% were satisfied with current situation related to display content and 255 respondents i.e. 61.3% were highly satisfied about it.

Table No.6.5 - Resolution and Viewing Quality

	Frequency	Percent	Valid %	Cumulative %
Do not Agree	60	14.4	14.4	14.4
Neutral	196	47.1	47.1	61.5
Agree	150	36.1	36.1	97.6
Strongly Agree	10	2.4	2.4	100.0
Total	**416**	**100.0**	**100.0**	

Interpretation -

From the above analysis researcher observed that, out of the 416 respondents, 60 respondents i.e. 14.4% did not agree about the resolution and viewing quality during demo. 196 respondents i.e. 47.1% were neutral about it. But 150 respondents i.e. 36.1% agreed about the resolution and viewing quality of display during demo. Only 10 respondents i.e. 2.4% strongly agreed on it.

Table No. 6.6 - Refresh Rate

	Frequency	Percent	Valid %	Cumulative %
Do not Agree	90	21.6	21.6	21.6
Neutral	121	29.1	29.1	50.7
Agree	185	44.5	44.5	95.2
Strongly Agree	20	4.8	4.8	100.0
Total	**416**	**100.0**	**100.0**	

Interpretation -

From the above analysis researcher observed that, out of the 416 respondents, 90 respondents i.e. 21.6% did not agree with the screen refresh rate

during demo. 121 respondents i.e. 29.1% were neutral about the screen refresh rate during demo. 185 respondents i.e. 44.5% agreed that screen refresh rate during demo was satisfied and 20 respondents i.e. 4.8% strongly agreed that screen refresh rate during demo was highly satisfied.

Table No. 6.7 - Screen in Viewable Size

	Frequency	Percent	Valid %	Cumulative %
Do not Agree	36	8.7	8.7	8.7
Neutral	100	24.0	24.0	32.7
Agree	220	52.9	52.9	85.6
Strongly Agree	60	14.4	14.4	100.0
Total	**416**	**100.0**	**100.0**	

Interpretation -

From the above analysis researcher observed that, out of the 416 respondents when asked about satisfaction of screen in viewable size during demo, 36 respondents i.e. 8.7% did not agree with this question. 100 respondents i.e. 24.0% were neutral about it. But total 280 respondents i.e. 67.3% agreed that, they are satisfied about the screen in viewable size during demo, out of them 60 respondents i.e. 14.4% strongly agreed on it.

Table No.6.8 - Physical Size

	Frequency	Percent	Valid %	Cumulative %
Do not Agree	141	33.9	33.9	33.9
Neutral	40	9.6	9.6	43.5
Agree	235	56.5	56.5	100.0
Total	**416**	**100.0**	**100.0**	

Interpretation -

From the above analysis researcher observed that, out of the 416 respondents, 141 respondents i.e. 33.9% did not agree about the physical size of the screen during demo. 40 respondents i.e. 9.6% were neutral on it. But 235 respondents i.e. 56.5% agreed that physical size of the screen was satisfied.

Table No.6.9 - Price

	Frequency	Percent	Valid %	Cumulative %
Do not Agree	42	10.1	10.1	10.1
Neutral	139	33.4	33.4	43.5
Agree	225	54.1	54.1	97.6
Strongly Agree	10	2.4	2.4	100.0
Total	**416**	**100.0**	**100.0**	

Interpretation –

From the above analysis researcher observed that, out of the 416 respondents, 42 respondents i.e. 10.1% did not agree regarding the price of components used during the demo. 139 respondents i.e. 33.4% were neutral regarding the price of hardware. 225 respondents i.e. 54.1% agreed about the price of the hardware used in demo and 10 respondents i.e. 2.4% strongly agreed about it. Total 56.5% respondents agreed that price of hardware used in demo was satisfied.

Table No.6.10 - Serviceability Points

	Frequency	Percent	Valid %	Cumulative %
Do not Agree	153	36.8	36.8	36.8
Neutral	48	11.5	11.5	48.3
Agree	215	51.7	51.7	100.0
Total	**416**	**100.0**	**100.0**	

Interpretation -

From the above analysis researcher observed that, out of the 416 respondents, 153 respondents i.e. 36.8% did not agree about the availability of the service points of hardware used in demo. 48 respondents i.e. 11.5% stayed neutral

about it. But 215 respondents i.e. 51.7% agreed that service points of hardware used in demo were available.

Table No.6.11 - Multi Display Screen

	Frequency	Percent	Valid %	Cumulative %
Dissatisfied	42	10.1	10.1	10.1
Neutral	64	15.4	15.4	25.5
Satisfied	160	38.5	38.5	63.9
Very Satisfied	150	36.1	36.1	100.0
Total	**416**	**100.0**	**100.0**	

Interpretation –

Out of the 416 respondents, 42 respondents i.e. 10.1% were dissatisfied about the use of multi display screen during the demo. 64 respondents i.e. 15.4% were neutral about it. 160 respondents i.e. 38.5% agreed that they were satisfied with the multi display screen during demo. Even 150 respondents i.e. 36.1% were very satisfied with use of multi display screen during the demo.

Table No.6.12 - Bidirectional Screen on Both Sides

	Frequency	Percent	Valid %	Cumulative %
Dissatisfied	5	1.2	1.2	1.2
Neutral	84	20.2	20.2	21.4
Satisfied	312	75.0	75.0	96.4
Very Satisfied	15	3.6	3.6	100.0
Total	**416**	**100.0**	**100.0**	

Interpretation -

It is clear from the graph that, out of the 416 respondents, 5 respondents i.e. 1.2% were dissatisfied about the use of bidirectional screen on both sides during the demo. 84 respondents i.e. 20.2% were neutral regarding the use of bidirectional screen during the demo. 312 respondents i.e. 75 % were happy to use the bidirectional screen during demo. 15 respondents i.e. 3.6% were very satisfied about the use of bidirectional screen during demo.

Table No.6.13 - Multi display screen with effect, use, resolution etc. is more effective

	Frequency	Percent	Valid %	Cumulative %
Neutral	5	1.2	1.2	1.2
Satisfied	366	88.0	88.0	89.2
Very Satisfied	45	10.8	10.8	100.0
Total	**416**	**100.0**	**100.0**	

Interpretation -

From the above analysis researcher observed that, out of the 416 respondents, 5 respondents i.e. 1.2% stayed neutral. But total 411 respondents i.e. 98.8% were satisfied about the effect, use and resolution of multi display screen during demo.

Table No.6.14 - Bi-Directional Screen or Development Will Resolve Your Problem

	Frequency	Percent	Valid %	Cumulative %
Dissatisfied	6	1.4	1.4	1.4
Neutral	72	17.3	17.3	18.8
Satisfied	218	52.4	52.4	71.2
Very Satisfied	120	28.8	28.8	100.0
Total	**416**	**100.0**	**100.0**	

Interpretation -

From the above analysis researcher observed that, out of the 416 respondents, 6 respondents i.e. 1.4% didn't think that, bi-directional screen or development will resolve the problems that may arise during demo. 72 respondents i.e. 17.3% were neutral about it. But 218 and 120 respondents i.e. 52.4% and 28.8% were found to be satisfied and opined that the problems that may arise during demo can get

resolved with the use of bi-directional or development in it.

Table No.6.15 – Availability of New Product is in the Market, it Changes the Perception of Users

	Frequency	Percent	Valid %	Cumulative %
Dissatisfied	54	13.0	13.0	13.0
Neutral	47	11.3	11.3	24.3
Satisfied	110	26.4	26.4	50.7
Very Satisfied	205	49.3	49.3	100.0
Total	**416**	**100.0**	**100.0**	

Interpretation -

From the above analysis researcher observed that, out of the 416 respondents, 54 respondents i.e. 13 % did not agree that, such new product in bi-directional screen will change the perception of the user. 47 respondents i.e. 11.3% were neutral on it. 110 respondents i.e. 26.4% were satisfied and agreed that the new product in bi-directional screen will change the perception of the user. Even 205 respondents i.e. 49.3% strongly think that the perception of the user will change definitely due to such new product in bi-directional screen during the demo.

Table No. 6.16 – Extent of Innovation in Bi-Directional Product Development

	Frequency	Percent	Valid %	Cumulative %
Dissatisfied	48	11.5	11.5	11.5
Neutral	208	50.0	50.0	61.5
Satisfied	105	25.2	25.2	86.8
Very Satisfied	55	13.2	13.2	100.0
Total	**416**	**100.0**	**100.0**	

Interpretation -

From the above graph it is crystal clear that, out of the 416 respondents, 48 respondents i.e. 11.5% did not agree and were dissatisfied though bi-directional product development is innovative. 208 respondents i.e. 50% were neutral about it. But total 160 respondents i.e. 38.4% were satisfied and agreed that idea of bi-directional product development is an innovation.

Table No.6.17- User Plan to Purchase Bi-Directional Product

	Frequency	Percent	Valid %	Cumulative %
Dissatisfied	48	11.5	11.5	11.5
Neutral	68	16.3	16.3	27.9
Satisfied	285	68.5	68.5	96.4
Very Satisfied	15	3.6	3.6	100.0
Total	**416**	**100.0**	**100.0**	

Interpretation -

From the above analysis researcher observed that, out of the 416 respondents, 48 respondents i.e. 11.5% did not intend to purchase the bi-directional product. 68 respondents i.e. 16.3% were neutral about the purchase of the same. 285 respondents i.e. 68.5% were ready to purchase such bi-directional product for their demo purpose. Even 15 respondents i.e. 3.6% were eagerly ready to purchase it.

Table No.6.18 - Ready to Convert Regular Screen with Bi-Directional Product

	Frequency	Percent	Valid %	Cumulative %
Dissatisfied	54	13.0	13.0	13.0
Neutral	262	63.0	63.0	76.0
Satisfied	95	22.8	22.8	98.8
Very Satisfied	5	1.2	1.2	100.0
Total	**416**	**100.0**	**100.0**	

Interpretation -

The above graph states that, out of the 416 respondents, 54 respondents i.e. 13% were not

ready to convert their present screen with the bi-directional product. 262 respondents i.e. 63% were neutral about the conversion of their screen with bi-directional screen. 95 and 5 respondents i.e. 22.8% and 1.2% respectively were satisfied and were ready to convert their present display screen with the bi-directional screen.

Table No.6.20 – To know if Making of Bidirectional Screen Useful to Customers is a Challenge

	Frequency	Percent	Valid %	Cumulative %
Neutral	211	50.7	50.7	50.7
Satisfied	145	34.9	34.9	85.6
Very Satisfied	60	14.4	14.4	100.0
Total	**416**	**100.0**	**100.0**	

Interpretation -

From the above analysis researcher observed that, out of the 416 respondents, 211 respondents i.e. 50.7% were neutral when asked whether making of bi-directional screen useful to customers was a challenge to them. 145 respondents i.e. 34.9% agreed about it and 60 respondents strongly agreed that, there are challenges that they see in making bi-directional screen useful to customers.

7. Findings:

The present study has focused on the status and new product components development of display unit in the field of technology management.

Researcher found the conceptual framework of Bidirectional unit. All the questions in these sections pertained to existing environment. The idea is to work more in the challenges they face and expectation from the research work.Also analysis highlights the new components of existing desktop or laptop. Here questions were asked that focused on the innovations and challenges faced by the respondents.

- Out of the 416 respondents, 94.7% respondents agreed on use of monitor for display purpose during demo, out of them 84 respondents i.e. 20.2% strongly agreed on the use of monitor for display purpose during demos.
- 85.6% agreed on the concentration on audience during demo.
- 51.7% agreed for it and 105 respondents i.e. 25.2% strongly agreed about the requirement of additional screen for laptop / led during demos.
- 48 respondents i.e. 11.5% did not agree on the question ‘Are you satisfied with the Display of the content in current scenario?’ 18 respondents i.e. 4.3% stayed neutral on it. But 290 respondents i.e. 69.7% agreed and 60 respondents i.e. 14.4% strongly agreed that they are satisfied with current situation related to display of the content.
- 24.3% were satisfied with current situation related to display content and 255 respondents i.e. 61.3% were highly satisfied about it.
- 150 respondents i.e. 36.1% agreed about the resolution and viewing quality of display during demo. Only 10 respondents i.e. 2.4% strongly agreed on it.
- Total 280 respondents i.e. 67.3% agreed that, they are satisfied about the screen in viewable size during demo, out of them 60 respondents

i.e. 14.4% strongly agreed on it while 56.5% agreed that physical size of the screen was satisfied.

- 225 respondents i.e. 54.1% agreed about the price of the hardware used in demo Total 56.5% respondents agreed that price of hardware used in demo was satisfied.
- 215 respondents i.e. 51.7% agreed that service points of hardware used in demo were available.
- 75 % were happy to use the bidirectional screen during demo. 15 respondents i.e. 3.6% were very satisfied about the use of bidirectional screen during demo.
- 98.8% were satisfied about the effect, use and resolution of multi display screen during demo.
- Even 205 respondents i.e. 49.3% strongly think that the perception of the user will change definitely due to such new product in bi-directional screen during the demo.
- 208 respondents i.e. 50% were neutral about it. But total 160 respondents i.e. 38.4% were satisfied and agreed that idea of bi-directional product development is an innovation.
- 285 respondents i.e. 68.5% were ready to purchase such bi-directional product for their demo purpose. Even 15 respondents i.e. 3.6% were eagerly ready to purchase it.
- 262 respondents i.e. 63% were neutral about the conversion of their screen with bi-directional screen. 95 and 5 respondents i.e. 22.8% and 1.2% respectively were satisfied and were ready to convert their present display screen with the bi-directional screen.
- 211 respondents i.e. 50.7% were neutral when asked whether making of bi-directional screen useful to customers was a challenge to them. 145 respondents i.e. 34.9% agreed about it and 60 respondents strongly agreed that, there are challenges that they see in making bi-directional screen useful to customers.
- Out of the 416 respondents, 54 respondents i.e. 13% did not agree that making of bidirectional screen will increase the usage of it. 177 respondents i.e. 42.5% were neutral about it. But 185 respondents i.e. 44.5% agreed that, making of bidirectional screen will increase the usage of it.

8. Conclusion:

This research has surveyed number of innovations related to multitasking, projection of images, interface and parallel processing of applications. Researcher has covered a broad overview and impacts of technology management with respect to computer era. This is in particular covered for hardware and pseudo code development with respect to software application in dual way.

- Rapid changes in the field of information technology make it possible to develop a new unit to enhance the portability of user.
- Creating awareness among the youth and end user gives new perspective to the global world.

- There is significant relationship between conceptual frameworks and impovisation of work facilities.
- There is significant relationship between conceptual framework of new product of bidirectional display and expectations of end users.
- The application provides user-friendly software, graphic interfaces and pictorial information that is useful to the user.
- From the above study researcher fulfills all sets of objectives and also proves the hypotheses set.

References:

1. http://whatis.techtarget.com/definition/video-display-unit-VDU
2. http://www.szdikl.com/eshownews.asp?id=79
3. http://www.mauskar.com/index.php/browse-news/11-news/74-top-10-reasons-to- have-dual-monitors-Top 10 Reasons to have Dual Monitors
4. http://echouser.com/casestudies/dualmonitors.php
5. http://www.webdesignerdepot.com/2009/05/advantagesanddisadvantagesofworkingwith-multiplescreens
6. SusurnHipasawaand, Uxjya Watanabe, Takayoshi Oshino, Wyohei Ichikawa, OmioGoto 1979 IEEE "A Microcomputer Based Educational System (MES) With Dual Display",CH1465- 4/79/0000-0442
7. Shneiderman, B (1997). Designing the User Interface: Third Edition, Addison-Wesley, p.p 458-465.
8. Cruz-Neira C. (1992). IEEE, The CAVE: Audio visual experience in automatic virtual environments. CACM,.35 (6) :p.64-72
9. Watanabe, Oshino, Ichikawa, Goto. (1979). IEEE, A microcomputer based Educational System with Dual Display. CH1465/79/0000-0442