
A Study on Feasibility of Application of Raspberry Pi in Teaching - Learning Process with Reference to Select Colleges of Hyderabad

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Abstract: *In today's life computers have become necessity because of its huge relevance in automation. A couple of decades ago computer was luxury but now it's no more a luxury. The need of computer knowledge and skill is important for every student along with the academics. We cannot separate academics and computer skills, both are equally important. The present study is based on the importance of developing the computer skills in every student because the future is purely based on the computers, as students learn English vocabulary so should be computer knowledge and skills built in the students. As we all know every student may not afford computer but the because of its significance Raspberry Pi is suggested to introduced in India in all streams irrespective of Course of education. Raspberry Pi is just as a mini computer but at a very cheaper price when compared to any desktop. Raspberry Pi introduction may bring some new methods of Teaching & Learning Process in the field of education. Students can learn things at a higher standard than before and also advance in their potentiality. This study presents the importance of introducing Raspberry Pi in teaching and learning process and how it would benefit the student. To know the feasibility of Raspberry Pi in Teaching and Learning process.*

Key words : *Learning Process, Raspberry Pi, Teaching, Technical Skills,*

INTRODUCTION

The Current study is about developing computing skills in the students which helps them and motivates as Globally competition; to be competent is on increase among the students. our students should also be trained to be a part of quality human resource. If we, as a faculty introspect ourselves on how is the present education system's teaching and learning process? Is our effort in preparing our future generation to face the world of Technology competent enough? We may all agree that it is not enough as for everything they look up to the faculty for assistance and guidance. There is a great need that we make our student less dependent on the faculty. In the present study we are concentrating on enhancing the skills of students in two ways .i.e. improve their technical skills to work well on basic MS Office to be more specific MS Word and MS Excel and be less dependent on the teaching staff when it comes to preparation of notes. Hence the Raspberry Pi is a series of small single-board computers developed in the United Kingdom by the Raspberry Pi Foundation to promote the teaching of basic computer science in schools and in developing countries This way our concern is to bring out the knowledge and potentiality of the student.

OBJECTIVES

The study mainly focuses on the uses of "Raspberry pi". To know the feasibility of "Raspberry Pi" in teaching and learning Process and to know the opinion of the teaching staff on the usage of Raspberry Pi in the class room.

Research Methodology

The study comprises of both primary and Secondary Data source. The first hand information is collected from the faculty of different colleges with in Hyderabad and the secondary information is taken from websites. The sample is restricted to Hyderabad. The firsthand information is collected through questionnaire.

REVIEW OF LITERATURE

Pritish Sachdeva. A and Shrutik Katchii , International Journal of Current Engineering and Technology, Accepted 01 Nov 2014, Available online 05 Nov 2014, Vol.4, No.6 (Dec 2014)

The Raspberry Pi is a very powerful computer having the dimensions of a business card. In this paper we review Raspberry Pi whose popularity has taken the learning process and application of ideas to a whole new level.

Raspberry Pi is intended to get people interested in computing, coding or even to solve their general needs. School kids, college kids, youngsters, oldies of the technology sphere have all started working on this board and many interesting projects have surfaced.

P Bhaskar Rao et al, International Journal of Computer Science and Mobile Computing, Vol.4 Issue.5, May-2015, pg. 797-803

The project presents a low cost and flexible home control and monitoring system using an embedded microprocessor and microcontroller, with IP connectivity for accessing and controlling devices and appliances remotely using Smart phone application.

The above two articles enlightens on the how Raspberry Pi has taken learning process and application of idea to a new level. How Raspberry pi can be used for home automation with the help of smart phone. The present article signifies on the idea of using “Raspberry Pi” in stream of Commerce & Arts teaching and learning process. The main motive is to create the habit of independence in academics and empower the students with the basic required technical skills in this computer savvy world.

About Raspberry Pi

The Raspberry Pi is a low cost, credit-card-sized computer that plugs into your TV, keyboard and a mouse. It is a capable little computer which can be used in electronics projects, and for many of the things that your desktop PC does, like spreadsheets, word processing, browsing the internet, and playing games.

A Raspberry Pi is a credit card-sized computer originally designed for education, inspired by the 1981 BBC Micro. Creator Eben Upton's goal was to create a low-cost device that would improve programming skills and hardware understanding at the pre-university level. But thanks to its small size and accessible price, it was quickly adopted by tinkerers, makers, and electronics enthusiasts for projects that require more than a basic microcontroller (such as Arduino devices).

The Raspberry Pi is slower than a modern laptop or desktop but is still a complete Linux computer and can provide all the expected abilities that implies, at a low-power consumption level.

Is the Raspberry Pi open hardware?

The Raspberry Pi is open hardware, with the exception of the primary chip on the Raspberry Pi, the Broadcom SoC (System on a Chip), which runs many of the main components of the board—CPU, graphics, memory, the USB controller, etc. Many of the projects made with a Raspberry Pi are open and well-documented as well and are things you can build and modify yourself.

What are the differences in Raspberry Pi models?

The Raspberry Pi Foundation has just recently released a new model, the Raspberry Pi 2, which supersedes some of the previous boards, although the older boards will still be produced as long as there is a demand for them. It is generally backwards compatible with previous versions of the board, so any tutorials or projects you see which were built for a previous version of the board should still work.

There are a two Raspberry Pi models, the A and the B, named after the aforementioned BBC Micro, which was also released in a Model A and a Model B. The A comes with 256MB of RAM and one USB port. It is cheaper and uses less power than the B. The current model B comes with a second USB port, an Ethernet port for connection to a network, and 512MB of RAM.

The Raspberry Pi A and B boards been upgraded to the A+ and B+ respectively. These upgrades make minor improvements, such as an increased number of USB ports and improved power consumption, particularly in the B+. The A+ and B+ have been reviewed on Opensource.com

The **Raspberry Pi** is a series of small single-board computers developed in the United Kingdom by the Raspberry Pi Foundation to promote the teaching of basic computer science in schools and in developing countries. The original model became far more popular than anticipated,

Where to can we buy a Raspberry Pi

Raspberry Pi can be bought from main distributors, Premier Farnell/Element14 and RS Components/Allied Electronics. Both the distributors sell all over the world. There are also resellers who sell online

Cost of the Raspberry Pi

The Model A+ costs \$20, the Model B+ costs \$25, the Pi 2 costs \$35, the Pi 3 costs \$35, and the Pi Zero costs \$5, plus local taxes and shipping/handling fees

What do we get when we buy Raspberry Pi

We get the Raspberry Pi board itself. A power supply and SD card are not included, but can be purchased at the same time from most places that sell the Raspberry Pi. Can also purchase pre-loaded SD cards; recommend buying these from licensed distributors rather than from third parties on eBay, as our software is updated regularly and cards sold by third parties can quickly become outdated

Where is the On/Off Switch?

There is no on/off switch! To switch on, just plug it in. To switch off, if you are in the graphical environment, you can either logout from the main menu, exit to the Bash prompt, or open the terminal.

Findings

-) It is found that only 17% of the sample population knows about Raspberry Pi. They know about this from a year ago
-) 83% of the population knew about Raspberry Pi through this survey
-) 83% of the population suggest Raspberry pi to be introduced in Teaching and Learning Process
-) 100% of the population recommend Raspberry pi over Traditional note book
-) 50% agree and 33% strongly agree if the students are aware of the uses of Raspberry Pi they would not hesitate to buy one
-) 67% agree and 17% strongly agree that Use of Raspberry Pi would enhance the skills of students
-) 50% strongly agree and 33% agree that students should prepare notes taking some guidance from faculty instead of completely depending on Faculty for everything
-) 67% strongly agree and 33% agree that every student should get involved in preparing notes this will contribute to enhance the knowledge in each student
-) 50% Strongly Agree and 50% Agree that when students get involved in preparing notes they would simultaneously start studying the subject which is a good sign.
-) 50% Strongly Agree and 50% Agree that the faculty can use the time spent in dictating notes in a better way testing the students learning process
-) 33% strongly agree and 67% Agree in this way they can mould the student better
-) 33% strongly agree and 50% agree that introducing Raspberry Pi in teaching and learning process would be effective

Suggestions

-) Majority of the population does not know Raspberry Pi, only through this survey they knew about this. When they knew about this product, majority of the population accepted/encouraged it to be included in Teaching and Learning process. It would be beneficial to our present education system to introduce such methods
-) The entire population is interest to avoid using paper/Traditional Note book; this concern could be due to global warming. Raspberry Pi Can be introduced in the education system.

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-) Majority of the population insist on students should be encouraged or inculcated to prepare their notes taking some guidance from faculty which they get during their class hours. In this way a student would be independent and would grow knowledge wise and self dependent, there is need of change in the present system of teaching and learning process
 -) If each student is made responsible in his academics they can mould themselves well and end of each year we would have students who are not only growing by age but also with insight. We would not only have good number of educated students but quality students in every institution
 -) Introducing of Raspberry Pi would make every student develop their basic technical skills it could be in MS Excel, MS Word, MS PowerPoint etc.. Even if the student is not well educated but with these basic skills they can obtain an Opportunity.

Conclusion

Raspberry Pi is a new concept in India. It was introduced in UK, the purpose of this is to make every student to get access to computer at a cheaper cost as the cost of computers was very high and was not in reach of each student. The same concept can also be successful in India if we introduce the Raspberry Pi in Teaching and learning process. As the cost is in reach to every student and gives accessibility which gives the feasibility of enhancing the basic computer skills in every student. With the Use of Raspberry Pi by the students the teaching and learning process can also be better structured would help in molding the student in a better way.

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