

Assignment

by Matthew Barnard

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Project Management and Research

Managing a Hardware/Software Project for Disaster Recovery

Sue Maw

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Introduction

This paper is to illustrate the problem that is given and showing the method used to create the project and shows how it works. This paper also illustrates the risk management and the code of practice. This paper will also illustrate how the project plan is affected when certain conditions have not been met.

The project

The project that is being made is a electronic cribbage board that runs using a PIC microcontroller to control each of the individual points within the circuit and each individual line of LED's. It controls the buttons that are used to turn the LEDs on and make them change the LED by adding 1 onto it and when it reaches the 20th LED it goes back down on the other line of LEDs and this works for both player 1 and player 2. The final part of the programme and circuit will be to use a reset button that will reset the entire circuit so all the LEDs are set to 0 and the game can be restarted or turned off. This board is to be used along with a pack of cards that will determine how many times a player can move the LED to match.

Risk Management

The risks for this project can be categorised as the dangers to the person creating the project and the dangers of producing the circuit on a PC and ways that this can be prevented or less of a risk as some risks can't be completely avoided but can be reduced by using certain methods. The risks of doing this project are while using a soldering iron the individual may burn themselves, another risk is making sure all the components are safe to use and aren't going to blow up or catch on fire. The other risks that are present are the using a PC to design the circuit at the start of the design process can be the possibility to lose all the data if the computer crashes or if the hard drive becomes corrupt, there is also the possibility of viruses getting into the system such as Ransomware which can block all of the important data on your PC it'll stop the user from using it until they have paid a amount to the person who uploaded the virus but the other user may not remove the ransomware afterwards and if the user tries to remove the ransomware themselves they can have major complications for example it can take a very long time to unblock all the files or may even still not be able to unblock the files at all. So, to prevent the risks a few steps can be taken, firstly for the soldering iron a few steps can be taken which is gloves can be worn to prevent burning yourself or other individuals around the user another step would be to use goggles to prevent poking the user or anyone else in the eyes so not to damage their eyes. The second risk that could be prevented is making sure all the products are not going to blow up or set the circuit on fire a way to prevent this is to make sure each of the components individually are working and aren't going to go up in flames. The other risk that can be prevented is preventing the loss of data which can be done in a few different ways, the first being that the user can do is backing up the data onto an external source such as a USB stick but even using this method can produce some complications for example the USB stick has a life expectancy that could again remove the data so that it is no longer there or the data can become corrupted. Secondly the next prevention can be to use an online storage system which can save all your data but has some downsides if the user is accessing an online storage system, they are best prepared to use it only when they have access to the internet also it can be slow if the internet is very slow. Finally, the method to prevent the ransomware is to have a full system backup that includes the operating software that can completely restore any files to the computer that was lost through the ransomware. Another way to prevent ransomware but this is not a guaranteed method is to very good anti-virus software that could prevent anything like this from happening.

Code of Practice

Sustainability issues

The issues behind the company can be split up into 3 different categories First order, second order and third order these will be discussed and then shown what the company is doing to prevent these from happening. So, for the first order is where the companies are throwing out all the old components that could be useful to another person when they no longer are in use it is also the expulsion of greenhouse gases from the electronic circuits that are using main stream power to power their devices. The company is preventing this by making sure none of the products will need any high-power items. The projects that the company are developing such as the S box is a low powered LCD screen that runs off small batteries, along with the electronic cribbage board requires low power where only 2 LEDs need to be on at any 1 time, the third project is the magic dice which will be using small batteries and low power to provide the LCD with power and lastly is the find your keys ring that uses low power to produce a signal to the users phone to represent the general location of the users keys. One of the key aspects of the s box is it's durable material that is wood so is a lot better for the environment than using plastic instead this is the same for the electronic cribbage board which is made out of wood so will be better for the environment. The second order is the placement of technology that no longer requires people to travel to certain locations using public transport or flying which is helping the world by lessening the greenhouse emissions so provides a more positive impact to the environment this is mostly due to the development of facetime technology that you can ring people and see their face at the same time. The products that the company are developing are to try and bring people closer together by playing card games so will have a negative impact on the environment this way as it requires people to speak to each other and come closer together. Finally, the third order is about the development of buildings that are being used specifically for the IT department such as the Wi-Fi companies, phone companies and other IT based companies the impact this has on the environment can be very concerning as its taking land over to use for buildings that may have no real value except to monitor the systems that they cover. This company has not built any buildings and therefore won't affect the environment as much as other buildings would when they were built as it is a small company only a small building will be required.

Ethical and Legal Issues

The ethical and legal issues for this company can be defined by the code of conduct that will be used in the work place to provide a safe environment and safe working space for each individual person within the company these can be identified below:

1. Be polite to others – be polite speak to other members of staff with the same common courtesy you would expect from them.

2. Treat others with respect – be respectful of other people's race, religion, or anything that could hurt them in anyway.
3. Avoid injuries – be careful of your surroundings make the health and safety measures are put into effect also no intentional items that could be a hazard.
4. No retaliation – if someone has spoken out of place or broken the 2nd code of conduct then report them do not say anything back that could affect you.
5. Comply with the laws of other countries if travelling overseas – if there are different laws within the country you are traveling to make sure you follow the laws of that country as it will be your own responsibility if a mistake happens.

For the code of conduct each employee will need to make sure these rules are followed so that there is no indication that there is any wrong doing and if not followed they can potentially lose their position within the company no matter what position that may be. One of the laws that must be followed is to make sure that each of the projects that are being developed by the company are not trademarked which is where another company has created that device and have made sure that no one can create the same product using the same name or if the product is exactly the same then not to develop it or they may get sued for potentially a lot of money. [1]

Quality assurance

The quality assurance section of this paper demonstrates the methods in which the product is kept up to the standards that the shop will sell and that it is safe for the consumer to buy. Quality assurance is the focus of planning ahead and documenting the guidelines to assure the quality of the finished product. The quality assurance check can be used for software-based products alongside manufactured designs. This guideline is typically done at the start of the project and draws on the companies' specifications and industry standards. The standard outcome for this process is to make a quality plans, inspection plans and test plans. The purpose of this process is to prevent any problems or defects into the process in the first place. For this project the quality assurance checks are to make sure the soldering is done to very high standards so that the circuit doesn't short circuit and that the components wires aren't sticking out that could hurt the individual person. Another quality assurance check could be to make sure that the would that is used is not going to cut anyone when they buy it. Another quality assurance check is to make sure the components themselves are safe to use. [2]

Timeline

The project itself has run over the time limit that was given it at the start it has taken longer than anticipated to fully develop the circuit using proteus and haven't moved onto building the circuit in real life the time that it should've taken was 30 days but it has taken a lot longer

to fully code the project, currently only 1 set of LEDs turns on and runs through the programme but once it reaches the 20th LED it switches off and wont run through the programme anymore this is due to the programme not being fully developed. Because of the slow process of the circuit building on proteus not only have all the LEDs needing to be turned there is the reset button that also needs to be setup to set all the values of the circuit back to zero so the game can be restarted. Due to this section of the project not being finished the development of the real-life solution has not been started and will take a lot more time than the actual predicted time that was set at the start of the project so the timeline for this project will not be met and may take longer to finish.

Future developments

In the future the project could be improved and changed to feature more features for example making it 4 player using the same amount of LEDs by making the LEDs colour changing LEDs so that they can represent different colours for each player so player 1 and player 2 will use the same LEDs but as the 1 player goes up the board the other player will be going up at the same time and they will swap over when they have reached the top and the same will be done to player 3 and 4 but on the other lines of LEDs. Another future development is to use a few other kinds of buttons so that the LEDs will move up depending on the button is pressed so there could be a add 5 button which can be pressed to add 5 to the individuals score. Another additional feature could be to make the product more appealing adding different kinds of materials to make it look better or even make it cheaper to build.

Conclusion

In conclusion this paper has illustrated what was done to make the list of quality assurances, the sustainability issues and the ethical and legal requirements needed to produce the product and put it into the consumers hands to use and play with. As stated, the project is a bit behind being only 1 part of the code works currently and will need to develop further before it can go out onto shelves and be sold to the general public. A few parts still need to be worked on which is the rest of the LEDs being able to use the player 2 button on the LEDs and the reset button still needs to be worked on. Along with that the risks of working on this project have been stated and shown how they could be prevented or steps to lessen the chance of the scenario happening.

Bibliography

- [1] "IEEE code of conduct," IEEE, New York, 2014.

[2] "The Difference Between Quality Assurance and Quality Control," Open Dialogue, [Online]. Available: <https://www.dialog.com.au/open-dialog/the-difference-between-quality-assurance-and-quality-control/>. [Accessed 25 1 2019].

Appendices

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Research And Project Management

PID

Sue Maw

Introduction

This project is about designing an electronic cribbage board with a reset button so that the entire board starts all the way from the beginning. This will be done in several steps for example first is the market research then so on and so forth.

Objectives

The objectives of this project are to create a fun interactive game for the entire family to enjoy, making it easier to play cards or any other games involving the device that is created, another objective is to integrate modern technology into old fashioned card games. To do this there are a few things that need to be done which is a lot of market research to see what products are out there and what can be improved on them for example from the research done on this project none of the electronic boards have a reset button to fully restart the game. The last stage of the project before release into the general public is to test the product fully to make sure everything is up to standard and works to the specifications required before the general release.

Scope

The scope for the project is to modernise card games for the future generations making it more accessible and entertaining. The age group this project is aimed at is the younger generation that may not want to play cards due to there is no major technology involved around the card games. The final piece of the puzzle is to make sure there isn't nothing in the market that matches the project or if there is something in the market what can be done to improve the project even further.

Constraints

There are many constraints that surround this project one of these is the time that is going to be spent on the project to make it fully working and presentable for the general public, another constraint is that of the budget maintenance to make sure that the project doesn't go over Budget. Another constraint is components that will be used on the circuit may not be up to standard code or not functioning fully. Moving on from the components another thing that needs to be considered is the software as it could not be fully working or not fully updated it may not run the simulation for the project. For this specific project another constraint could be that the PIC that is being used could potentially not work or be very complicated to programme.

Authority

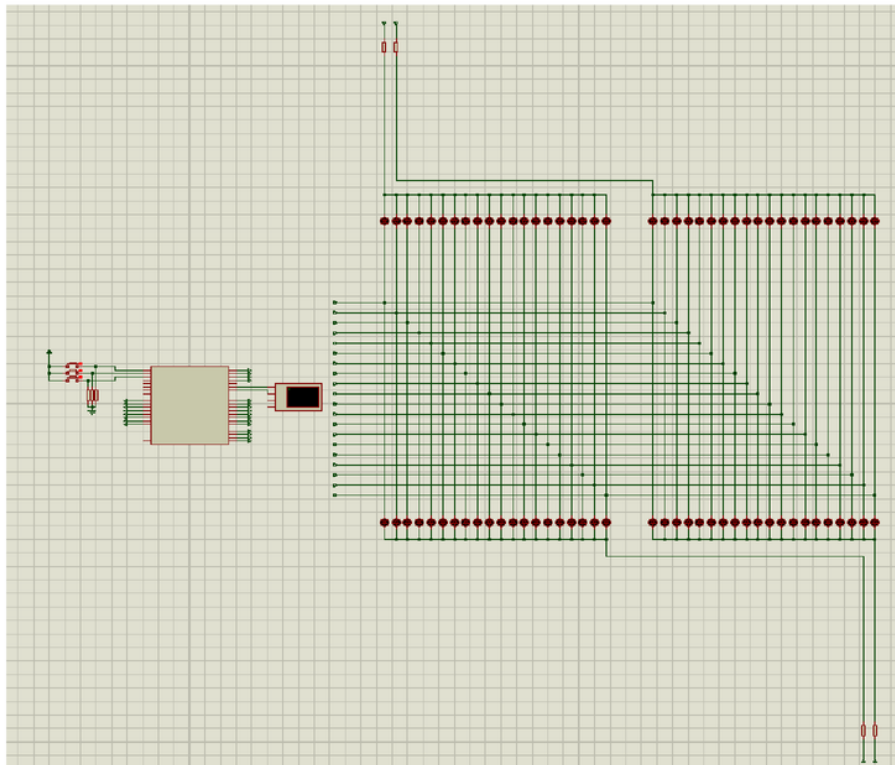
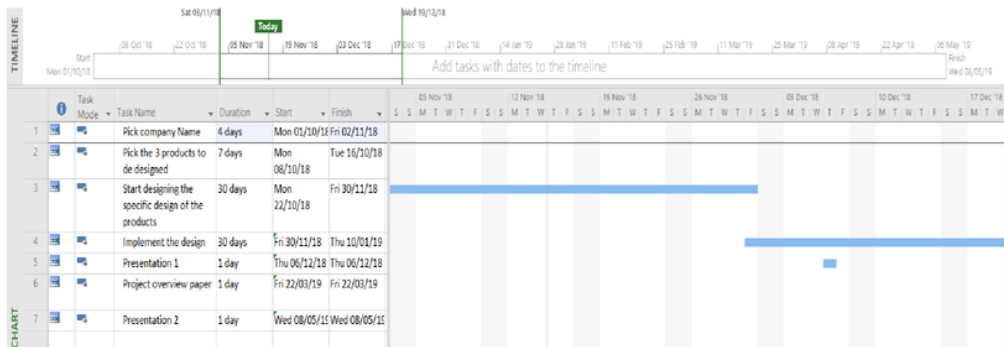
The authority are the people who are in charge and run the project these are Sue Maw who is in charge of Project Management and Research Methods this is where the team searches for anything in the market already and find ways to change the product or improve it for future generations, James Williams is in charge of the Enterprise and Innovation with Mabrouka Abuhimda they are in charge of and lastly there is Gary Jones who is in charge of the practical side of the project along which is to monitor the completion of the final project.

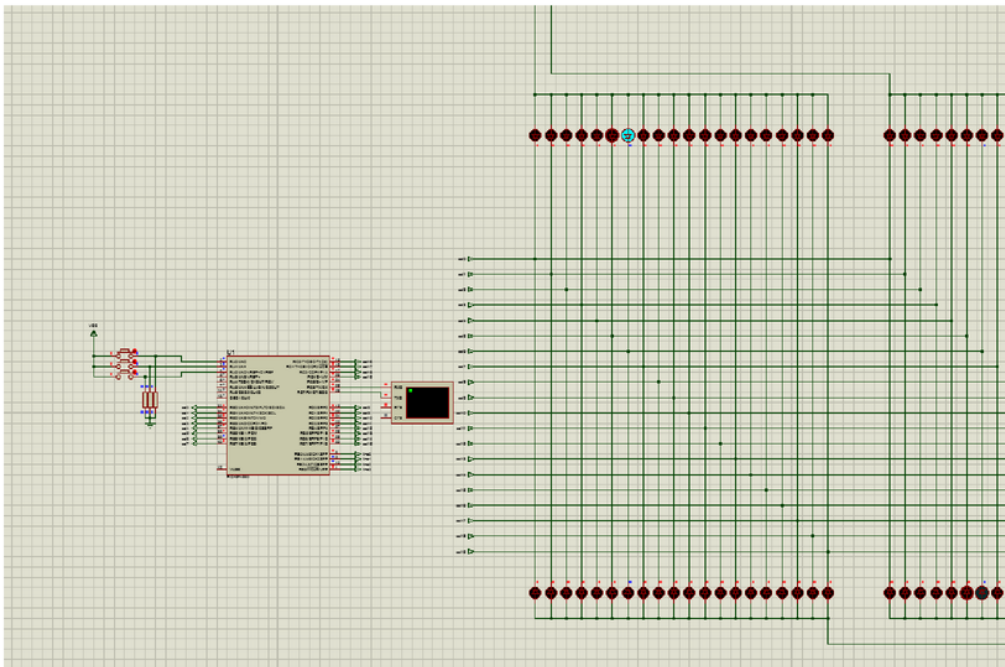
Resources

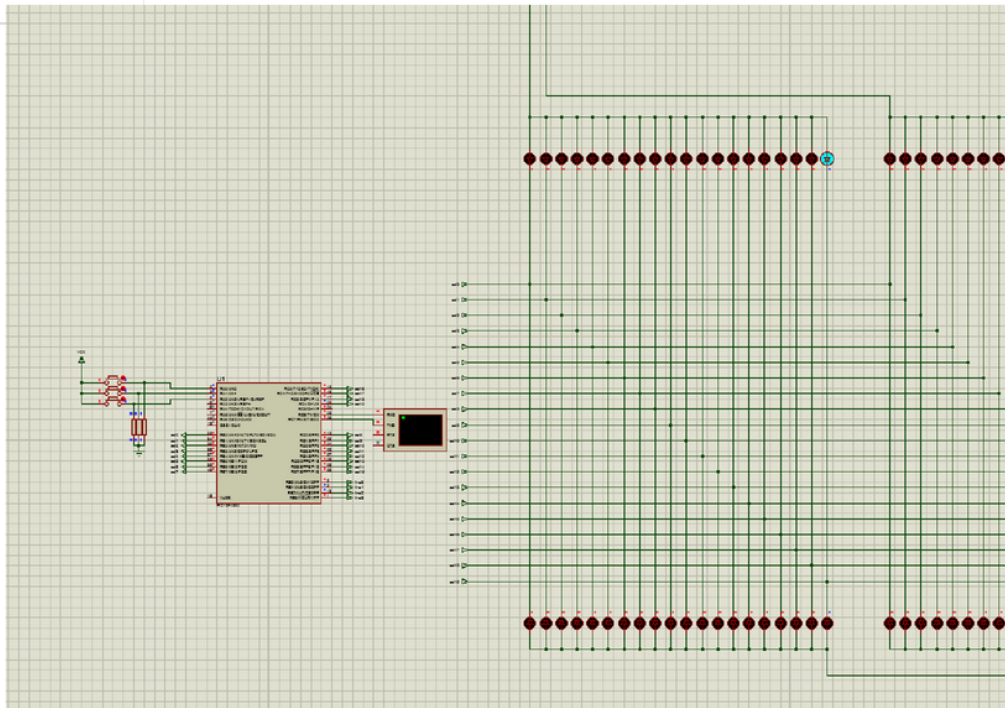
The resources that are being used are university computers or even personal computers that have access to certain applications for example for this specific project access to CCS compiler, Microsoft project and Proteus to develop certain aspects of the project. Proteus will be used to design the circuit that will be used for the final design of the circuit. CCS compiler will be used to develop the programme that will be used on the circuit to make it function properly. Microsoft project will be used to create the Gantt chart to show the stages of the design process. Another resource that will be used is the university components for the final design.

Risk Management

There are a few risks that are involved with this upcoming project these are using a soldering iron but with proper protection and making sure everyone using a soldering iron is fully trained with the equipment so they aren't going to burn themselves with the iron the other thing that can be done is to wear goggles so solder doesn't go into the persons eye or they don't poke their eye with the soldering iron. Another risk is to make sure the components are safe to use and are protected within the circuit by resistors.







Assignment

GRADEMARK REPORT

FINAL GRADE

GENERAL COMMENTS

Instructor

36/100

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