

Project Abstract Report

FINAL YEAR PROJECTS 2020



FALL 2020

Department of Computer Science

ABSTRACTS

Final year Projects



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Project Title:	Scope & Usability Evaluation for Sports Management Application
Students:	20-11010 Taimoor Ali 20-11155 Muhammad Muteeb Masood 20-11025 Hussain Zaka
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Abstract:	<p>Growing up in a developing country like Pakistan, our generation is one that had the privilege of loving sports before the time of digital social media. There are many problems to tackle in this research and propose a solution to each problem, such as unavailability of a platform for sports matchmaking, lack of performance in team management due to unavailability of a matchmaking application, missing features in existing applications, hassle in arranging matches with other team, issues related to venue booking and time clashes between matches in venues. Our aim is to research and find what suits the need of sportsmen in the country and to solve these problems by developing a workable prototype at the end. In order to proceed with the research, we opted to conduct a survey in order to establish a need for our proposed application as well as identify the main features required by users. After conducting research and developing a prototype, some of the problems we stated before were solved through various features we integrated in the prototype. These features include matchmaking, team management, booking management, statistics record/data collection and organization. Although our work addresses and solves the problems identified, further research and development must be done which requires costing and pandemic free routine in order to achieve best possible outcome.</p>

Project Title:	Hand Gesture Based Interface For Operating System
Students:	20-10585 Shan-e-Zainab Bilal 20-11294 Abdul Rehman Tariq 20-10626 Basharat Ismail
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Abstract:	<p>Many people in our country want to keep updated devices which have the latest techniques and functionalities. The project we aim to work on will bring ease for many types of people; those who want to use latest technology for their own satisfaction and for those people or work areas as well where there is a need of this technology. The use of hand gestures can be done in places where it is prohibited to touch the device or system physically like a surgeon might want to use it or in a chemical factory such technology can be taken advantage of. The aim of our project is to create ease for people; the user can simply perform operations on their computers by showing a certain gesture to the camera. For the completion of the project, we investigated many existing models and had to go through many code works as well. This helped us in finalizing our resultant approach. This system will be using a simple webcam to give the results as the aim for our project was to provide a facility of higher importance with the minimum possible cost. The system is a client-server-based system where the user will show a hand gesture to the camera and a system call will be sent to the OS, which in response will provide the resultant output stored against the given gesture. A user interface has been created to make the user familiar with the system and any requirements the user must know</p>

Project Title:	Smart Traffic Control System For Ambulance
Students:	21-10932 Amir Muhammad Khan 20-11425 Syed Ali Moayyad 21-11168 Tasbiha Abbas
Supervisor:	Salman Chaudhry Rabranea Bqa
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Abstract:	<p>Developing issue of traffic clog is an unpreventable condition in large and developing cities over the world. Rise in population has expanded the quantity of vehicles prompting a sheer development in traffic. During calamities, the reaction time taken by the emergency services assume an urgent job whether it is a medical service. To defeat that, there is a requirement for smart ambulance detection system.</p> <p>This project presents a solution for making traffic system for ambulance smart and efficient using a software and hardware solution. Smart system is designed to function as a mobile self-checkout system providing this mobile app installed in the smart phones of the emergency vehicle drivers. It is designed to be efficient and fully synchronized with the driver's real-time location. After picking up the patient from a particular respective accident area, a driver drops off his location via mobile app and through GPS it will come up with the shortest route to the nearest hospital. In addition to this, nodes are installed on every traffic signal to toggle signals to turn them green or red. Moreover, we will have the details of the driver and respective ambulance stored in our database to be used for analytical purposes.</p>

Project Title:	Skin Detection through Artificial Intelligence - DERMAI
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Abstract:	<p>Skin diseases seriously affect individual's life and wellbeing, and they are more common than other diseases. Diseases of skin can be caused by microbes, hypersensitivity, infections, or contagious diseases, etc. The advancement in analysis of the skin lesions with the assistance of lasers and photonics is significantly more dependable and speedier however the expense of such conclusion is yet restricted and costly. In this project, two main classifications of skin tumors such as benign and malignant skin disease could be identified with more accurate results. At first, skin pictures were preprocessed to eliminate commotion and superfluous foundation by filtering and transformation. Later, GLCM process was introduced for the division of lesion images. The texture and color features of various skin infection images could be achieved precisely. Finally, with CNN classification method, these types of skin diseases will be identified more effectively in this project using transfer learning technique. Firstly, we fine-tuned the dataset on multiple architectures like VGG16, Xception, Inception V3, Inception-ResNet-v2 and the highest achievable accuracy was 91.81% using Inception-ResNet-v2 architecture. Metrics of evaluation used in this project were Classification Accuracy and FI Score. The training of datasets was done on Google Colab GPU (Graphics Processing</p>

	<p>Unit) for more accuracy and less time consumption. An API was built using Flask which was integrated in the backend code of the web application developed in PHP to achieve the desired results. The front end was developed using HTML and CSS. The final product could be run on any system using local host. Dermai system is a start to create a change with effective results in the field of medicine which would be improvised even more according to the changing pace of time and technology.</p>
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Project Title:	Social Media Predictive Analytics
Students:	21-10342 Muhammad Saad 20-10551 M Hamza Butt 20-10028 Ezhan Ul Huq
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Abstract:	ADPRE is a web based system designed to provide analytics for social media marketing based on the principle of predictive analytics through the use of machine learning. Through this system, individuals, firms, companies and organizations will be able to check social media analytics regarding various keywords and design social media marketing strategies accordingly. It will be designed to not only provide such analytics but also offer recommendations regarding what kind of campaign can be designed for optimal social media reach. Perhaps the most important factor that contributed in the motivation towards this project was the single fact that social media marketing is one of the key trends in the business and marketing worlds today. All brands, big and small, now have a strong presence on social media. Therefore, it is imperative for them to be able to reach a wider audience so that they can easily increase revenue. Reaching a larger audience requires a highly calculated approach; an approach which maximizes reach with the minimum required effort. This can be achieved using specialized tools that are designed to measure social media reach. A web-based system designed to provide analytics for social media marketing based on the principle of predictive analytics through the use of machine learning. Through this system, individuals, firms, companies and

	<p>organizations will be able to check social media analytics regarding various keywords and design social media marketing strategies accordingly. It will be designed to not only provide such analytics but also offer recommendations regarding what kind of campaign can be designed for optimal social media reach. Here we used an agile approach for development. Initially we worked with our sample data and made a prototype based on it. Once we obtained significantly promising results then we created the actual system and ran tests on it to make sure it functions according to our requirements. Once we were confident that our initial requirements were being met, we then decided to go ahead and start the programming and development process so that we could bring our idea to life.</p>
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Project Title:	COVID19- Frontline Heroes
Students:	20-10700 Muhammad Ezaan Khan 19-10666 Muhammad Ibrahim 21-10831 muWaleed Ashfaq
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Abstract:	<p>Our project is First Person Shooter (FPS) survival 3D game. The goal of our project was to create an FPS game with an environment of an area that is quarantine and under a pandemic of a deadly virus. This game is made to enhance the experience of rescuing the patients. We have used Unity engine for developing this project.. Our game has player state handling for running, standing, and jumping movement states with seamless transitions, easily configurable speeds, and with spatial audios. The health of the players and player health management with damage from encountering the patients or when they fight back is also included. The player can interact with different objects and they can even pick or drop things, it can climb up and down the stairs, open doors and interact with other objects as well. Our game has AI with navigation mesh path finding for the patients. In future, further improvements can be carried out in this project to make it a more reliable and useful game. Our main objective was to learn the core concept of coding that was essential to create a game with good graphics and friendly user interface.</p>

Project Title:	Game- Glory
Students:	19-11261 Razi Abbas 20-11211 Tallal Ahmed Bhatti 19-11262 Syed M.Abdul Wasay Kazmi
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Abstract:	<p>Our project is a 2D turn based role-playing game that is known as “Glory”. This game enhances the player’s knowledge with the help of story line. Basically, it is a 2d game on the events of 1947 partition of subcontinent. Player can fight with the enemy and escape from the event. As computers have taken over the current era and people are becoming more familiar with the technology, especially the young generation is more into technology rather than reading books, the group wanted to portray the history of independence 1947 and the principles that led to partition of sub-continent through this 2d game because nothing has been done in this specific field.</p> <p>We live in the modern era i.e. The 21st Century. An era of technology and video games. After playing games all our lives, we just feel the need for a video game which revolves around the rich history of subcontinent. It is surprising though as nothing good has ever been made on the subcontinent history considering its rich history and culture. We want to develop a video game which revolves around the history of subcontinent and the 1947 partition to educate the upcoming generations, as there is considerably more interest in video games than reading books. We decided to work on Unity as our primary platform as our main idea was to build a game. We initially created prototypes of scenes</p>

	<p>which we wanted to add in our game and we also created animated videos to have an idea of our game play interface. Results: Our product is attractive and fun for people who are interested and want to learn the history of Partition in 1947. Our product is a game beneficial for the young generation: playing this game would increase their knowledge and love to their country.</p>
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Project Title:	Research to find an Optimal Model of Customer-Support for E-Commerce Platforms
Students:	20-10598 Muhammad Fahad Hafeez 20-11174 Muhammad Irfan Khan
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Abstract:	E-commerce is not a new term to anyone. It has become quite popular in recent times largely due to the comfort and ease it provides to its stakeholders. Being users of e-commerce ourselves, we felt that the customer-support segment of the majority the platforms that we use is not quite up to the mark as it does not facilitate us much as we required, being the users. This led us to research a bit in this area and finally we came up with this topic of finding an optimal customer-support model for e-commerce platforms, as our research topic. A thorough research was conducted by us with the help of 70 participants. We tried to find out some issues as to why the current models of customer-support are not yielding satisfying results according to the users and finally came up with some solutions to the problems on hands. The optimal model that we came up with is, a primary live text chat feature with an option of audio calling between the user and the customer-support representative of the e-commerce platform. This is the best possible solution according to this research to satisfy most of the e-commerce users and convert their intent into purchase. A little prototype has also been made in the light of the outcomes of this research.

Project Title:	A Restaurant Reservation App Based on AI Filtered Reviews-Foodverse
Students:	20-11239 Ayesha Shamim 20-11203 Adil Ahmad Qureshi
Supervisor:	Samia Asloob Qureshi Ali Faheem
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Abstract:	<p>In today's world of technology, people need everything to be faster and easier to use. As far as the food world is concerned, trusting someone's opinion is where the difficulty lies. In our county, mostly the reviews posted online are maligned with abusive content and biasness regarding flourishing food franchises. Along with this the food delivery services are managed well whereas people looking for a takeaway or a reservation for dine out are doomed. Keeping all these factors in mind, comes an easy-to-use mobile application with authentic and reliable reviews regarding the features of a restaurant. Our project aims to tackle this problem with the help of an AI system which based upon multiple factors filters out spamming remarks and gives you closest to an honest opinion. In the dining section, our app gives you an opportunity to pre-order food by giving you access to the entire restaurant menu. Our users can not only order food for take away and delivery but can also make a reservation to dine in. Through this application, not only customers but restaurants owners can also benefit by showcasing their products. All in all, we are bringing an all- in-one app with a highly accurate AI system.</p>

Project Title:	English Text to Pakistan Sign Language Converter
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Abstract:	<p>The primary objective of this project is to develop a tool that helps bridge the gap in the education and learning of the Deaf Children in Pakistan. This will assist the children to learn the Pakistan Sign Language from a very young age, both alphabets and words which will help them communicate with each other as well as those without any hearing disability. It gives the Hearing-Disabled children a chance to overcome the reduced empathy and low social and emotional development, which will lead to a better lifestyle for these children when they will be able to share their ideas with the world, providing the space for these children to be creative, innovative and imaginative. English Text to Pakistan Sign Language Converter is a desktop application made using MathWorks – MATLAB. English Text to Pakistan Sign Language Converter takes in live images from any camera that provides an IP address, and using the image processing techniques and OCR, converts them into text. That text is then compared with the dictionary of the Pakistan Sign Language that is obtained using PSL’s website, a sign language developed by Deaf Reach Schools to help deaf and hearing-disabled people of Pakistan to communicate. English Text to Pakistan Sign Language Converter has 2 phases: Phase 1 and Phase 2. Phase 1 is aimed for children with hearing disability of ages 3 years and above, it is used to play the Pakistan Sign Language signs for the alphabets that are written on</p>

	<p>the pages that are taken as input in the form of live images. Phase 2 is aimed for children with hearing disability of ages 4 years and above, it is used to play the Pakistan Sign Language signs for the words that are written on the pages that are taken as input in the form of live images. If the Pakistan Sign Language dictionary does not contain a sign for a particular word, then that word is broken into alphabets and the PSL signs of those alphabets are then played out on the screens of the users..</p>
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Project Title:	Virtual Degree Audit, Course Recommendation and Grade Prediction System
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Abstract:	<p>Since, FCCU is a liberal arts university where students have to choose their courses on their own unlike many other universities in Pakistan so it becomes very difficult for students to use their catalogues to check their degree requirement because there are multiple year catalogues for different majors and for each catalogue's there are multiple major, elective, and general education courses. So, it is a burden for students to find their correct catalogue form the FCCU official website (which is such a complex website to explore by students). And secondly, students have to first take an appointment for the manual degree audit where they face difficulty in time clashes and as a result Students complete their degrees late due to this issue and cannot study the right course. So, to finish this problem we proposed and developed this system because we also faced this problem like many other students during our university time in FCCU.</p> <p>We have developed this system as a desktop application where students can easily audit their degree and they can find how many courses are left for them in order to complete their degrees without any complex of catalogue and this system can recommend course based on their interest and predict their grade in that course based on academic performance. We have come up with a plan and development idea to tackle and solve this problem with our programming skills. Using the help of</p>

python and its tremendous libraries these issues are no more difficult to be solved. Firstly, the Degree Audit System and Recommended system is developed by using graphical interface and some python coding which tell about the remaining courses and recommended course based on someone's interest. Secondly for prediction system we use Machine Learning through Anaconda which is a platform of python in which we trained our data set and perform training on that data and testing. With the above solution and development, an institution can become even more advanced and fair. The project produces a positive output to signify the use of technology. To conclude, our project outputs Results that are specifically focused upon the case and fits in perfectly to help the institution excel According to the modern era of technology.

Project Title:	The Paradox Island
Students:	21-10152 Abdul Wahab Tariq 21-10015 Abdul Moiz Asif
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Abstract:	<p>The game we have developed is a 3D partially open world game that interacts with its users and the users have to figure out what particular set of steps they can perform in order to proceed ahead in the game, and to uncover the secrets. The major reason behind developing this game is that in today's world, although there are a plethora of games which have amazing art, story or both, however, what many games lack is the way they interact with the user. People intend to lose interest in the game if the game keeps on telling them what they should do, the game treats the user like a robot. Another reason is that most games are now played online due to the easy availability of the internet. But sadly, people also stop playing online games due to the toxic communities that exist in the online world. Therefore, we have put together a game that keeps the user interacting as well as interested in the game. To build the game we have used tools like Unity and Blender mostly. The development work was done in unity which we learned from scratch and Blender was used to make some of the assets used in the game. We also used Adobe After Effects to create a map cut scene which is played during the transition from one scene to another. The major upside to the game developed by us is that the game would be easily available, and it would be very user friendly, in the sense that it would be easily run on lower end computers.</p>

Project Title:	Smart Parking System	
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Supervisor:	Dr. Mubashar Mushtaq Dr. Aasia Khanum	
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Abstract:	<p>Parking has always been very hectic for everyone. We are introducing this Efficient and Smart way to automate the management of the parking system that allocates an efficient parking space using internet of things technology. The IoT provides wireless access to the system and the user can keep a track of the availability of the spaces in a parking area and also show the shortest path to it. With increase in the population of vehicles in metropolitan cities, road congestion is the major problem that is being faced. The aim of this paper is to resolve this issue. Parking has always been a very hectic thing to do. Everything has turned smart so the parking system should also be smart. The smart parking system will make a great ease for everyone and would also be beneficial in terms of security. Smart parking system is the key solution to reduce the waste stage of the fuel. This will be the solution for the problems that is being raised. Smart parking system will be a solution to minimize user's time and efficiency as well as the overall cost of the fuel burnt in search of the parking space.</p>	