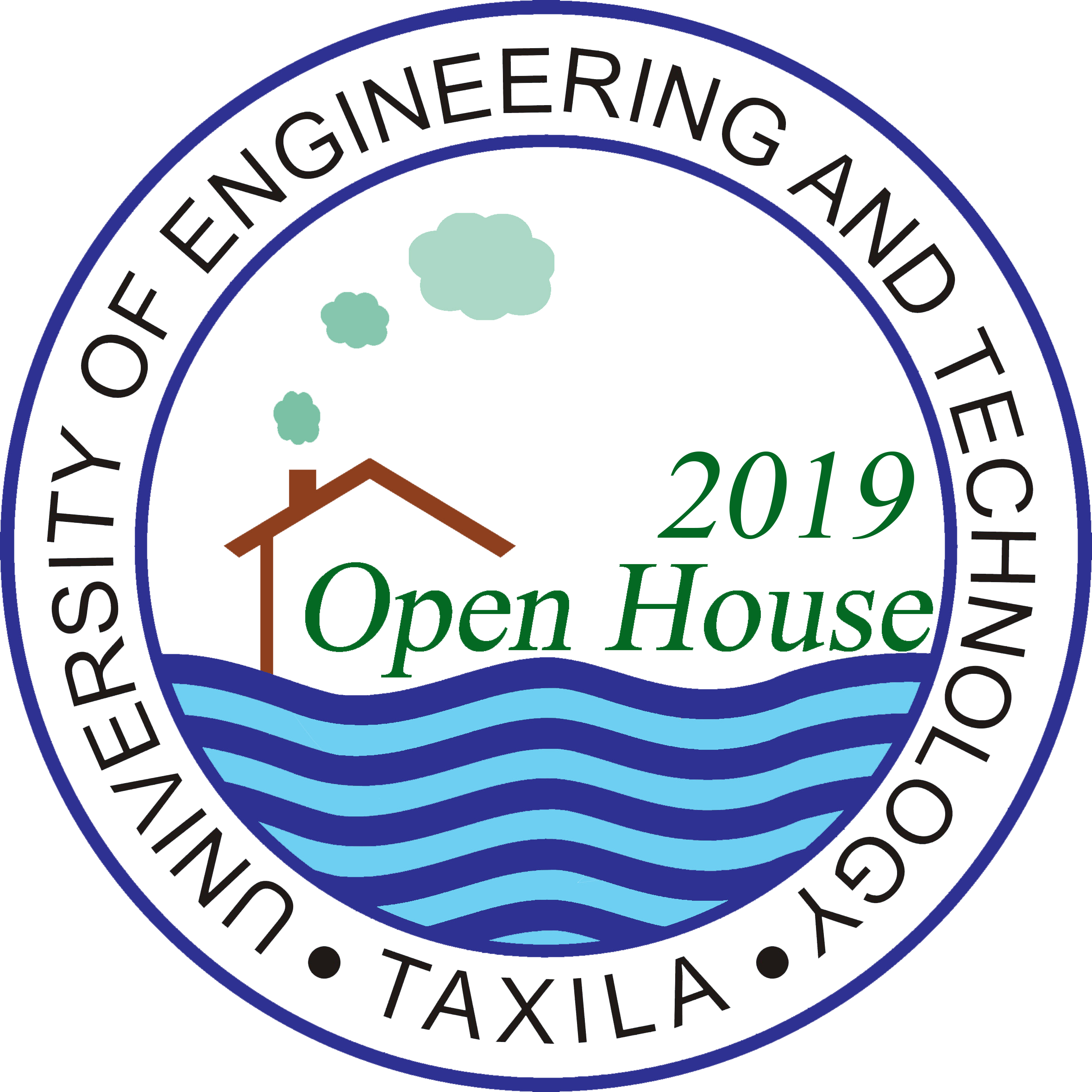
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FINAL YEAR PROJECT EXHIBITION 2019



16th JULY 2019

FACULTY OF TELECOM &

INFORMATION ENGINEERING

ABSTRACTS

COMPUTER ENGINEERING DEPARTMENT

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# COMPUTER ENGINEERING DEPARTMENT

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| --- | --- |
| **Project Title:** | **E-water (Water Regulation System)** |
| **Students:** | Wardah Batool (15-CP-04)  M Shahbaz Saeed (15-CP-08)  Muhammad Ihsan (15-CP-100)  Muddasar Abbas (15-CP-106) |
| **Supervisor:** | Dr. Hafiz Adnan Habib, Professor |
| **Email:** | [adnan.habib@uettaxila.edu.pk](mailto:adnan.habib@uettaxila.edu.pk) |
| **Abstract:** | As we know the water crisis is the main problem and everyone is facing that problem. One of the main reasons of that crisis is the excessive use of water. People waste water unintentionally and due to which consumption of water increases. If we can control that unintentional use of water, we can save a lot of water.  Our proposed E-water system can help to control the consumption of water by restricting the users to some limit. User have to pay according to the usage, and we will provide the user a website page where he can see its information. Only the registered user will be able to use the system. |

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| **Project Title:** | **Online Student Marketplace** |
| **Students:** | Syeda Noor Safder (15-CP-10)  Muhammad Affan Qureshi (15-CP-60)  Muhammad Talha Ali (15-CP-72) |
| **Supervisor:** | Dr. Hafiz Adnan Habib, Professor |
| **Email:** | [adnan.habib@uettaxila.edu.pk](mailto:adnan.habib@uettaxila.edu.pk) |
| **Abstract:** | Today everybody is on internet. Now these days you can do everything online including shopping, communicating, business, selling, banking and much more than why not remain intact to your work?? Online Student Market Place (OSM) is a crowdsourcing marketplace enabling individuals and businesses (known as Requesters) to engage a 24/7, global distributed workforce (known as Workers) to perform tasks. HIT is a human oriented task that creates Request on OSM, an example of a task would be "Identify the red apple in this image of a fruit basket". Workers can use the [OSM website](https://worker.mturk.com/) to explore assignments and submit responses. Developing the Online Student Market Place for student is a strive to make the tasks efficient, easier and simpler. |

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| **Project Title:** | **Face Recognition base attendance system** |
| **Students:** | Usman Ghani (15-CP-24)  Talha Arif (15-CP-86) |
| **Supervisor:** | Dr. Hafiz Adnan Habib, Professor |
| **Email:** | [adnan.habib@uettaxila.edu.pk](mailto:adnan.habib@uettaxila.edu.pk) |
| **Abstract:** | The main purpose of this project is to build a face recognition-based attendance monitoring system to enhance and upgrade the attendance system into more efficient and effective. The current system has a lot of ambiguity and is inaccurate and inefficient. Many problems arise when the authority is unable to enforce the regulation. Thus, by means of technology, this project will resolve the flaws while bringing attendance taking to a whole new level by automating most of the tasks. The technology working behind will be the face acknowledgment system. Accordingly, it is utilized to follow way of life as the conceivable outcomes for a face to deviate or being copied is low. In this project, confront databases will be made to pump information into the recognizer algorithm. At that point, faces will be contrasted against the database with look for personality. At the point when an individual is distinguished, its attendance will be taken down and automatically saving necessary information or data into database system. |

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| **Project Title:** | **Smart Meter Reader** |
| **Students:** | Esha Rashid (15-CP-07)  Muhammad Abubakar Waris (15-CP-39)  Muhammad Waqar (15-CP-107) |
| **Supervisor:** | Dr. Muhammad Haroon Yousaf, Associate Professor |
| **Email:** | [haroon.yousaf@uettaxila.edu.pk](mailto:haroon.yousaf@uettaxila.edu.pk) |
| **Abstract:** | The current process of meter reading is prone to error. This project is based on the need to solve the problem of manual meter reading process. The aim of our project is to provide methodology to automate the existing meter reading system. To propose a methodology for reading data from meter using an image processing technique. We have developed a general algorithm based on deep learning that can detect digits in the meter images of very precisely and gives us meter reading in the end. We have employed several techniques to solve this problem. The first technique consists of cropping the ROI and then using Google vision API to extract reading. In the second technique we have developed our custom model to detect each digit using convolutional neural network as an individual object and extract reading from the image using those objects. We have compared the results of both techniques. Our propose methodologies provide an efficient solution to the problems related to meter reading. |

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| **Project Title:** | **Human Action Recognition for crime scenes** |
| **Students:** | Hafiz Anas Zameer (15-CP-14)  Syed M. Tahir Abbas (15-CP-40)  Muhammad Saqib Naeem (15-CP-76) |
| **Supervisor:** | Dr. Muhammad Haroon Yousaf, Associate Professor |
| **Email:** | [haroon.yousaf@uettaxila.edu.pk](mailto:haroon.yousaf@uettaxila.edu.pk) |
| **Abstract:** | In current video surveillance systems, we have large number of surveilling cameras but with limited number of staff to monitor them hence many criminal or suspicious activities goes undetected by humans. Our project aim is to design an algorithm which can detect suspicious human activities to aid monitoring staff for increasing their efficiency and to reduce their burden. In first step we divided the videos into temporal segments, then made bag of these for both normal and abnormal videos segments. In next step we extracted the features of these videos segments using pre-trained C3D model. In the last, we trained the fully connected neural network using these feature that gives high score for abnormal video segments and low score for normal videos segments using ranking loss function. We have achieved our main goal by notifying through sound alert where abnormal activity is occurred in surveillance videos. |

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| **Project Title:** | **STUDENT ENGAGEMENT ANALYSIS USING FACIAL EXPRESSION RECOGNITION** |
| **Students:** | Mehak Fatima (15-CP-02)  Ayesha Batool (15-CP-90)  Sana Liaqat (15-CP-108) |
| **Supervisor:** | Dr. Muhammad Haroon Yousaf, Associate Professor |
| **Email:** | [haroon.yousaf@uettaxila.edu.pk](mailto:haroon.yousaf@uettaxila.edu.pk) |
| **Abstract:** | Analyzing student engagement is an important parameter for the teacher in order to access his own lecture delivery so there is a need of a tool for the evaluation of the student towards effective learning. The focus in this project is to analyze the students through face emotions, either they are engaged in the lecture or not.  The aim is to propose a technique for the human emotion’s recognition based on recognized expressions and analyze the student’s behavior while attending the lecture in order to examine lecture effectiveness.  The working model is divided into six phases i.e. video sequence, key frame extraction, face detection, pre-processing, feature extraction and classification. After acquiring the dataset, the face detection and recognition module is used to detect the face of students using voila jones algorithm, after that the module for feature extraction reveals whether there is an expression of engagement or not. Based on the features taken with SIFT descriptor, a judgment is made regarding the expression shown. This is done on the classification step which classifies the emotions of the student using SVM classifier. By this time, we have achieved an accuracy of 89.39% using SIFT/SVM methodology with close precision as in human observers. |

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| **Project Title:** | **Driver Assistance System** |
| **Students:** | Ushna Areeg (15-CP-18)  Muhammad Azeem (15-CP-48)  Hamza Shoukat (15-CP-94) |
| **Supervisor:** | Dr. Mohammad Haroon Yousaf, Associate Professor |
| **Email:** | [haroon.yousaf@uettaxila.edu.pk](mailto:haroon.yousaf@uettaxila.edu.pk) |
| **Abstract:** | According to the World Health Organization, more than 1.25 million people die each year as a result of road traffic crashes. Objectives of project are to develop algorithms for Road Sign Detection, Lane Departure Detection and Relative Distance Measurement and implementation on the hardware for automated system. For lane detection, camera calibration was applied on input image, perspective transform was found and then estimation resolution is applied. For distance estimation and traffic sign detection, we calculate the HOG features, and build the SVM classifier to detect the traffic sign detection and slide the window on input and then false positives were filtered out. A system which can detect road lanes, traffic signs and vehicle distance estimation implemented on a low-powered GPU board i.e. Nvidia Tegra TK1. |

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| **Project Title:** | **Advance Van Tracking System for Students Safety** |
| **Students:** | Nimra Abbasi (15-CP-42)  Anam Shahzad (15-CP-44) |
| **Supervisor:** | Dr. Fawad Hussain, Assistant Professor |
| **Email:** | fawad.hussain@uettaxila.edu.pk |
| **Abstract:** | This era has been deemed as the Technological Era and by that we mean the advancement which is taking this world towards Automation. Every advancement in technology is made by keeping in mind the ease and benefit it will provide to human beings. Each advancement in technology brings more ease to people and introduces labor-free services and my project is a fine example of that. The project on which I am working on is “advanced van tracking system”. It basically works on RFID system which operates on card. This card is used for identification system and tracking location. When a student marks his attendance using card, the information goes in database system and it will be updated on website or app and parents can check its status anytime. It will also help parents to know where the van is at any specific time and they can enjoy tension free lifestyle. In case of any misplacement of card, parents can complaint and get new card as soon as possible. |

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| **Project Title:** | **Handy Import** |
| **Students:** | Babar Hussain (15-CP-47)  Faria Gulzar(15-CP-75)  Muhammad Amjad (15-CP-99) |
| **Supervisor:** | Dr. Muhammad Rizwan, Assistant Professor |
| **Email:** | [muhammad.rizwan@uettaxila.edu.pk](mailto:muhammad.rizwan@uettaxila.edu.pk) |
| **Abstract:** | Now a days, world is moving towards AI and making every task done automatically. Every business person needs their job done easily and save time as much as possible. Major issue today is the collecting useful data over internet for business uses the manual process is very headache, also user sometimes need small data from a large page and he need to go through entire document that is very time consuming, to make these things possible using auto-bots we are presenting Handy Import. HI is a web-based application, we can name it as web crawler data mining agent or data miner, it provides you the web scraping, data mining, data extraction, data presentation and data transformation. It is capable of converting unstructured web content to the structured and organized data, human readable form and helps a user in automation of their professional as well as personal data extraction process, sending promotional/marketing emails. It enables any organization to gain intelligence, efficiencies, and competitive advantages from the vast amount of data on the web. It points out phone numbers, emails and locations/address and suggests the user about them on web page using machine learning algorithms. It provides a new way of searching data using few parameters and collect all data automatically in the required format. |

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| **Project Title:** | **Stock Prediction via Business Intelligence** |
| **Students:** | Usman Mahmood (15-CP-38)  Romaisa Rehman (15-CP-51)  Hamza Irfan (15-CP-58)  Muhammad Arslan (15-CP-82) |
| **Supervisor:** | Dr. Muhammad Rizwan, Assistant Professor |
| **Email:** | [muhammad.rizwan@uettaxila.edu.pk](mailto:muhammad.rizwan@uettaxila.edu.pk) |
| **Abstract:** | The project deals with the development of a stock prediction application. The aim of the project is to generate accurate forecasts of the stocks listed in the Pakistan Stock Exchange. The application helps an investor in making correct decisions by showcasing the future trends in stock market which yields the maximum profit. The stock forecast is conceivable by implementing supervised learning model that learns the patterns and relationships in the data and then correctly reproduce them for generation of future trends. The Data set for the project is collected from PSX Website and MUFAP. |

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| **Project Title:** | **STUDENT MANAGEMENT SYSTEM(SMS)** |
| **Students:** | Muhammad Aqeel (15-CP-29) Muhammad Rizwan (15-CP-33) Rabia Aftab (15-CP-49) |
| **Supervisor:** | Dr. Muhammad Rizwan, Assistant Professor |
| **Email:** | [muhamad.rizwan@uettaxila.edu.pk](mailto:muhamad.rizwan@uettaxila.edu.pk%20) |
| **Abstract:** | Student Management System (SMS) provides a simple interface for maintenance of student information. It can be used by educational institutes or colleges to maintain the records and produce OBE based results of students easily. The creation and management of accurate, up-to-date information regarding a students’ academic career is critically important in the university as well as colleges. Student information system deals with student personal details and course registration details. It tracks all the details of a student from the day one and can register them online. It also has a faculty dashboard which can be used by teachers to produce OBE based results by mapping courses and the CLO, PLO associated with them. All this will be available through a secure, online interface. It will also have batch execution details, students’ course registration detail. The various academic notifications to the staff and students are updated by the administration. Different reports and Queries can be generated based on vast options related to students, batch, course, faculty, exam results and semesters. |

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| **Project Title:** | **Synchronization and Analysis of Olfaction Enhanced Multimedia** |
| **Students:** | Abdul Rehman(15-CP-043)  Muhammad Nabeel Sajjad (15-CP-083)  Muhammad Irtiza Ali (15-CP-101) |
| **Supervisor:** | Dr. Muhammad Majid , Associate Professor |
| **Email:** | [m.majid@uettaxila.edu.pk](mailto:m.majid@uettaxila.edu.pk) |
| **Abstract:** | The user quality of experience (QoE) can be enhanced by enriching an audio-visual multimedia content with multiple sensorial components. Traditional multimedia engages two human senses i.e., vision and auditory. Olfaction enhanced multimedia (OEM) is generated by adding an olfactory effect in traditional multimedia content. In this project, OEM is generated by synchronizing olfaction dispenser with traditional multimedia content. Both the traditional and OEM content are displayed to users and their brain activity is recorded by using commercially available EEG headset. Human brain activity is analyzed in response to both the OEM and traditional multimedia content. |

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| **Project Title:** | **Design and Implementation of AES Algorithm on Raspberry Pi** |
| **Students:** | M. Waqas Ameer (15-CP-34)  Zain Ali (15-CP-74) |
| **Supervisor:** | Dr. Muhammad Majid, Associate Professor |
| **Email:** | [m.majid@uettaxila.edu.pk](mailto:m.majid@uettaxila.edu.pk) |
| **Abstract:** | Nowadays information security techniques are very essential for secure communication in almost all applications especially the ones that involves very private data. The information security can be achieved by using cryptographic algorithms. The Advanced Encryption Standard (AES) algorithm provides high level of security and been in use since 2001. In this project AES algorithm is implemented on Raspberry Pi. AES algorithm is extended to support the block size of 512 bits called (AES-512). There are 4 steps in the encryption process i.e., SubBytes, ShiftRows, MixColumns and Add-round key. The performance of designed algorithm is also evaluated with state-of-the-art AES algorithms.  The main aim of this project is design and implement an AES-512 algorithm on Raspberry Pi. Objectives  Propose a new AES-512 algorithmImplementation of proposed AES algorithm on Raspberry Pi, Comparison of proposed algorithm |

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| **Project Title:** | **Design of Multiple Sensorial Computer Game: MULSE RUN** |
| **Students:** | Abdul Hanan Khalid(15-CP-030)  Hadiqa Azam (15-CP-063)  Muhammad Mohsin Altaf (15-CP-96) |
| **Supervisor:** | Dr. Muhammad Majid , Associate Professor |
| **Email:** | [m.majid@uettaxila.edu.pk](mailto:m.majid@uettaxila.edu.pk) |
| **Abstract:** | The user quality of experience (QoE) can be enhanced by enriching an audio-visual multimedia content with multiple sensorial components. Traditional multimedia engages two human senses i.e., vision and auditory. Olfaction enhanced multimedia (OEM) is generated by adding an olfactory effect in traditional multimedia content. In this project, OEM is generated by synchronizing olfaction dispenser with traditional multimedia content. Both the traditional and OEM content are displayed to users and their brain activity is recorded by using commercially available EEG headset. Human brain activity is analyzed in response to both the OEM and traditional multimedia content. |

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| **Project Title:** | **Context-Aware Media Recommendation System** |
| **Students:** | Zubair Khalid (15-CP-41)  Syed M. Noor (15-CP-97)  Sarfraz Sajjad (15-CP-109) |
| **Supervisor:** | Dr. Muhammad Awais Azam, Assistant Professor |
| **Email:** | [awais.azam@uettaxila.edu.pk](mailto:awais.azam@uettaxila.edu.pk) |
| **Abstract:** | This project implements a research work based on a novel strategy for high-fidelity image restoration by characterizing both local smoothness and nonlocal self-similarity of natural images in a unified statistical manner. The main contributions are three-folds. First, from the perspective of image statistics, a joint statistical modeling (JSM) in an adaptive hybrid space-transform domain is established, which offers a powerful mechanism of combining local smooth-ness and nonlocal self-similarity simultaneously to ensure a more reliable and robust estimation. Second, a new form of minimization functional for solving image inverse problem is formulated using JSM under regularization-based framework. Finally, in order to make JSM tractable and robust, a new Split-Bregman based algorithm is developed to efficiently solve the above severely underdetermined inverse problem associated with theoretical proof of convergence. Extensive experiments on image inpainting, image de-blurring and mixed Gaussian plus salt-and-pepper noise removal applications verify the effectiveness of the proposed algorithm.  Objective   1. design of joint statistical modeling 2. An implemented algorithm for high-quality image restoration using joint statistical modeling in space-transform domain |

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| **Project Title:** | **Smart Water Quality Monitoring and Notification System** |
| **Students:** | Muhammad Saad Kayani (15-CP-89)  Israr Hussain (15-CP-111) |
| **Supervisor:** | Dr. M. Asif Khan  Assistant Professor |
| **Email:** | [masif.khan@uettaxila.edu.pk](mailto:masif.khan@uettaxila.edu.pk) |
| **Abstract:** | The customary technique for checking the quality of water is to accumulate samples of water manually and then send them for testing in the labs. It is a tedious strategy, the labor is wasted and it is also not conservative. The framework that we have introduced to monitor the quality of water, checks the nature of water continuously through different sensors to quantify the nature of water. As soon as the value from any sensor goes out of standards the buzzer is turned ON automatically to notify the authority. |

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| **Project Title:** | **Efficient & Reliable Router Design for Network on Chip (NOC)** |
| **Students:** | Muhammad Jawad Ali (15-CP-27)  Muhammad Faisal Nawaz (15-CP-37),  Zain ul Abidin Hashmi (15-CP-57)  Zohaib Jahandad (15-CP-93) |
| **Supervisor:** | Engr. Naveed Khan Baloch, Assistant Professor |
| **Email:** | [naveed.khan@uettaxila.edu.pk](mailto:naveed.khan@uettaxila.edu.pk) |
| **Abstract:** | Silicon technologies in the present scenario are the ones which enable the integration of millions and billions of transistors inside a single chip. Due to the need of maximum computational performance the need for higher processing system is required and this has led the designers to integrate multiple cores in a single chip. This idea led to development of Network on Chip (NoC) to deal with more cores on a single chip. Multiprocessor architectures and platforms have been introduced in the market to extend the applicability of Moore’s lawwhich clearly says that the number of transistors inside a chip increases after every year and the price is reduced to half of the starting one. A NoC basically has 3 components i.e. routers, links and Network Interfaces. Low latency routers development inside NoC is the important step. Our work is related to development of a network of processors on a chip and then making that network reliable and efficient enough to be applicable with limited area consumption, less power usage, maximum performance, a high level of scalability and parallelism. Based on the analysis done previously the selection criteria for NoC is done based on procedures and test cases for benchmarking, traffic characterization and modeling, design automation, latency and power minimization, fault-tolerance, prototyping, and network interface design. |

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| **Project Title:** | **Vehicle Make and Model using Raspberry Pi** |
| **Students:** | Areeba Anfal (15-CP-06)  Sheeraz (15-CP-54)  Usaid Abdullah (15-CP-64)  Sikandar Rafique (15-CP-70) |
| **Supervisor:** | Engr. Naveed Baloch, Assistant Professor |
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| **Abstract:** | Vehicles make and model recognition is a key factor in vehicles analysis. A Vehicle Make and Model Recognition (VMMR) system operating in real time is an important element in security applications of Intelligent Transportation Systems (ITS). A precise VMMR system operating in real time considerably reduces the overhead cost of resources which are required otherwise. In this project, we present a DNN based VMMR. |

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| **Project Title:** | **E-cure health monitoring application** |
| **Students:** | Mamoona Shabbir (15-CP-56)  Nawaf Nadeem (15-CP-80)  Zeeshan Khalid (15-CP-104) |
| **Supervisor:** | Engr. Afshan Jamil, Assistant Professor |
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| **Abstract:** | As we know people need ease in their daily life work, for this purpose they introduced mobile phones for communication and with time, software development also made progress in means of developing many android applications at a lower cost.  Many people living in rural areas where medical facilities and doctors for specific diseases aren’t available, then they must travel to different cities to get appointment of doctors.  So, the main purpose of a project is to design an Android app will provide different health facilities to the users at their mobile phones. The most important feature of this project are  · Calculating BMI  · Seasonal diseases precautions and treatment  · Online appointment and live interaction with doctor |

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| **Project Title:** | **Tutors Nearby** |
| **Students:** | M. Faizan Abuzar (15-CP-05)  M. Usama Ijaz (15-CP-09) |
| **Supervisor:** | Dr. Waqar Ahmad, Assistant Professor |
| **Email:** | [waqar.ahmad@uettaxila.edu.pk](mailto:waqar.ahmad@uettaxila.edu.pk) |
| **Abstract:** | In Pakistan, lack of education is a big issue and those who are studying, are doing it in a very competitive way. There is no easy way to make the availability of education easy to get. Tuitions and academies are very common interest of students to achieve higher marks but there is no easy way out there to directly engage a tutor to hire for a home tuition and same goes for the tutors who are interested and willing to teach tuitions. The main goal of our project is to ease the way for both, the tutors and the students, to contact each other through a secure online platform which can keep an eye on both sides, verify the tutors on the basis of their degrees and experience, their behavior, their regularity and results as well as their payments from the students. |

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| **Project Title:** | **Smart Waste Management System** |
| **Students:** | Muhammad Danyal (15-CP-55)  Shakir Azeem(15-CP-81) |
| **Supervisor:** | Dr. Waqar Ahmad, Assistant Professor |
| **Email:** | [waqar.ahmad@uettaxila.edu.pk](mailto:waqar.ahmad@uettaxila.edu.pk) |
| **Abstract:** | Smart Waste Management (SWM) system is a Management System that let operator know if Smart Bins are filled are not. The problem arises when Trash bins overflow in highly populated area.  The objectives of the project are to design a Management System based on Android & Website Application, develop a system and test it.  This system will allow driver to know which Smart Bins require immediate collection and which do not need collection.  Drivers will also be able to get the shortest route of filled smart bins. This method is more efficient compared to routine collection. |

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| **Project Title:** | **Smart Helmet with driving improvement features** |
| **Students:** | Aqsa Iqbal (15-CP-01)  Anees Iqbal (15-CP-59)  Hanan Ali (15-CP-79) |
| **Supervisor:** | Engr. Aasim Raheel, Lecturer |
| **Email:** | [asim.raheel@uettaxila.edu.pk](mailto:asim.raheel@uettaxila.edu.pk) |
| **Abstract:** | Road accidents of two-wheeler are one of the major problems in our country due to late rescue. In case of Accidents, the safety of the Bike riders is of much importance so an efficient accident detection system with fall detection accuracy up to 98.41% is introduced to the project. When accident occurs, a massage alert is generated to the registered number along with the longitude and latitude of the rider through the Smart App. As driving improvement features, voice navigations and provided with Bluetooth fitted headphones. The distinctive utility of project is Map Guide, that the bike rider’s sets up a destination and voice navigation mode set up. Moreover, to ensure the rider safety the rider responds to the incoming calls through Bluetooth headphones while driving. For the convenient use of the helmet in the severe hot climate, temperature is controlled inside the helmet with the thermoelectric pad. |

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| **Project Title:** | **Haptic enhanced gaming chair** |
| **Students:** | Qasim Bhatti (15-CP-17)  Babar Khan (15-CP-36)  Amna Rizvi (15-CP-03) |
| **Supervisor:** | Engr. Aasim Raheel, Lecturer |
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| **Abstract:** | A gaming chair is one designed especially for the comfort of video game players. The history of the gaming chair originated from racing games such as Need For Speed, FlatOut etc. The original idea was to replicate the feel you have when driving a sporty car. This is why almost all gaming chairs are designed to look like a car seat. The idea is to develop an immersive environment by developing a game and then synchronizing with the gaming chair that moves in accordance with the movement of the vehicle in the game. Such a synchronized chair enriches the player’s experience of playing the game and give a realistic feel. |

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| **Project Title:** | **Brain Control Racing Game** |
| **Students:** | Syeda Rida Zehra (15-CP-53)  Muhammad Amir (15-CP-31)  Waqas Ahmad (15-CP-87) |
| **Supervisor:** | Engr. Sanay Muhammad Umar Saeed, Lecturer |
| **Email:** | Sanany.muhammad@uettaxila.edu.pk |
| **Abstract:** | With the advancement of technological growth, humans are more vulnerable to mental stress and workload. Psychological specialists have proposed few techniques in order to reach mental relaxation. One of the promising strategies is relaxation-based games. The main idea is to design a car with microcontroller that will translate electroencephalography (EEG) readings from a headset worn by the player, and, contingent upon the sort of brain activity recognized, either move the vehicle or stop. The purpose behind integrating EEG in our project is to search and explore the developing and arising field of brain computer interface (BCI). Economically accessible headsets make it feasible for the field to widen its view. The principle goal of the project is to design a working car that will react to a players’ mind activity and respond appropriately. This will help the user to practice relaxation. |

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| **Project Title:** | **Brain Controlled Wheelchair** |
| **Students:** | Arooba Arshad (15-CP-12)  Faiza Khalid (15-CP-32)  Saadat Ullah Khan (15-CP-26) |
| **Supervisor:** | Engr. Sanay Muhammad Umar Saeed,Lecturer |
| **Email:** | Sanany.muhammad@uettaxila.edu.pk |
| **Abstract:** | This project deals with the development of a Brain-Computer Interface (BCI) based wheelchair. The aim is to improve the quality of life for paralyzed people by assisting them in improving their motor disabilities. Paralyzed people are unable to maneuver a mechanical wheelchair, which many of them normally use for mobility. Hence there is a need for designing a BCI based wheelchair. Electroencephalogram (EEG) signals are required using commercially available EEG headset which are further passed on to microcontroller for controlling the wheelchair. A Muse headset is used to record EEG signals which will be processed by the microcontroller for determining the direction of wheelchair i.e. forward, backward, left and right. |

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| **Project Title:** | **Find A Worker** |
| **Students:** | Hassan Farooq Malik (15-CP-45)  Muhammad Hamza Arshad (15-CP-77) |
| **Supervisor:** | Engr. Sharoon Saleem, Lecturer |
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| **Abstract:** | Find A Worker, as the name suggests is a platform focused on giving people the ability to search for and procure individuals and services online. Using this service, one can hire people/worker online to perform diverse tasks. A specialist worker in that area will visit the person ordering the service to furnish the request. Workers would be able to upload their profiles, select their specialist fields in order to offer their services to users in a particular area. The profiles of every worker will be thoroughly vetted and verified before the profile is made available to the public to hire.. Complete profile of a worker including information like phone number, location, skills, rates and reviews will be available to end users so that they can make an informed decision.  The web based application is developed using JavaScript, Laravel and SQL based database. This website will be flexible and allow easy access through mobile or via a computer. |

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| **Project Title:** | **Automatic Switching between Multiple Power Sources Priority Based** |
| **Students:** | Moaz Shera (15-CP-102)  Arif Ali (15-CP-28)  M Adeel Jabbar (15-CP-98) |
| **Supervisor:** | Engr. Muhammad Tariq Javed, Lecturer |
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| **Abstract:** | Transfer switches ensure that when you have a power outage, your critical equipment keeps running. The electrical switches transfer loads between different power sources - some types do this automatically, while others get run by an operator. The equipment is applicable to a wide range of environments, ranging from residential, agricultural and light commercial applications to the critical power needs of healthcare, financial and data center facilities.  The proposed device switched between four power sources (i.e. Solar, Utility, Generator and Battery) and in case of one’s unavailability other one takes the charge. The compact design of switching device is user friendly and has LCD display about currently working source and battery level indicator which will indicate the health of a battery. The PIC microcontroller can be used to control the system and make decision for all four sources, and priority of the sources will be:   1. Solar 2. Utility 3. Generator 4. Battery   When solar is available all the load is connected to solar when the solar voltage decreases the load is automatically shifted to the utility and if the utility is also not available then the load will be shifted to generator. Battery will be used as a backup and during the load shifting among the sources. |

**The End**

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