Report on Visit to NALI 2023

| SUBJECT CODE:	SECP1513
LECTURER:	Dr Sarina Sulaiman
SECTION:	07
GROUP NAME:	BUTTERCANNOTFLY!
GROUP MEMBER:	LING LEE HOM
	LEE XUAN YING
	ISMAIL BIN ESA
	NICHOLAS YEK EI ZHE
	JUSTIN FAUZADANI AZKA

Introduction to NALI 2023

NALI (New Academia Learning Inovation) is an annual knowledge sharing event organised by Universiti Teknologi Malaysia (UTM), through Center for Advancement in Digital and Flexible Learning (UTM CDex). NALI is a framework to promote innovative teaching and learning practices in education. It comprises student-centred and blended learning philosophy, multiple learning modes and materials towards achieving entrepreneurial academia. The first edition of NALI was organised in 2018.

For NALI 2023, the theme is Resilience Education for Future-Oriented Quality Graduate. This aim to develop education method that help to develop resilience within individuals to prepare themselves to be better equipped to navigate life's challenges and reach their full potential. As resilience refer to an individual's ability to cope with adversity and high stress situations, becoming flexible and adapting to changes and persevere and make a comeback in difficult situations. Thus, resilience education aims to teach individuals skills and strategies to develop resilience, such as problem-solving, positive thinking, emotional regulation, social skills, and coping mechanism. Instead of feeling overwhelmed and helpless, individuals can be empowered to handle challenging situations and overcome obstacles.

REFLECTION & EXPLANATION ON POSTER
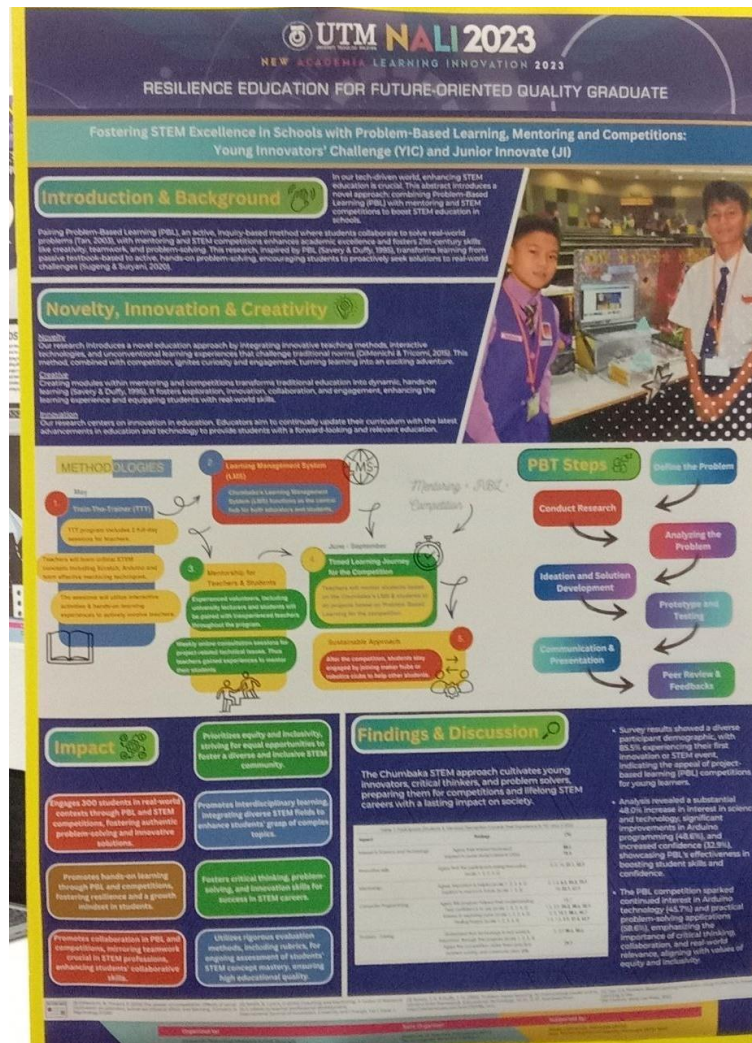
Explanation&Reflection:

The poster which titled 'Fostering STEM Excellence in Schools with Problem-Based Learning, Mentoring, and Competitions: Young Innovators' Challenge (YIC) and Junior Innovate (JI),' presents a groundbreaking approach to STEM education. By combining Problem-Based Learning (PBL) with mentoring, we aim to revolutionize the educational landscape.

Active in ICT innovation for teaching and learning, our initiative introduces the innovative Trains-The-Trainee (TTT) program. In this session, teachers engage in hands-on learning experiences, mastering critical STEM concepts such as Scratch and Arduino, alongside effective mentoring techniques.

The integration of a Learning Management System (LMS) serves as a central hub, fostering stronger bonds between educators and students. This innovative platform enhances the teaching and learning process, providing a seamless connection for both parties.

Our Mentorship for Teachers & Students is a standout innovation, pairing experienced volunteers—university teachers and students—with less-experienced teachers. Weekly online consultation sessions address project-related technical issues, enabling teachers to gain valuable experience in mentoring their students.

A unique aspect of our project is the Timed Learning Journey for the Competition. Teachers guide students through project-based learning on the LMS, culminating in a competition. Post-competition engagement is encouraged through participation in maker hubs or robotics clubs, facilitating knowledge-sharing among students.

Our holistic approach promotes hands-on learning through PBL and competitions, nurturing resilience and a growth mindset in students. We prioritize equity and inclusivity, striving for equal opportunities to create a diverse and inclusive STEM community. Additionally, our initiative encourages interdisciplinary learning, seamlessly integrating diverse STEM fields to enhance students' comprehension of complex topics.

The poster titled "Fostering STEM Excellence in Schools with Problem-Based Learning, Mentoring, and Competitions: Young Innovators's Challenge (YIC) and Junior Innovatee (JI)" offers significant benefits to students. One key advantage is the inspiration it provides for teaching approaches, allowing students to glean valuable insights and knowledge applicable to their future workplaces, particularly if they enter the field of education post-graduation.

Moreover, the poster stimulates creative thinking, encouraging students to explore innovative ways to maximize the use of ICT in teaching and learning. It introduces advanced concepts in ICT education, conveying the benefits and hard work associated with this field. As a result, students are motivated to proactively engage in ICT activities.

The central theme of the poster revolves around using education to cultivate ICT skills among students. In my view, the poster holds the potential to influence course outcomes by suggesting practical methods for both students and teachers to enhance their engagement with ICT. For instance, the "Mentorship for student and teacher" approach mentioned in the poster could be implemented by universities to strengthen relationships between lecturers and students, fostering a deeper passion for Technology Information System (TIS) courses.

The poster not only imparts methods to promote ICT among students but also underscores the essential role of schools in ensuring students are well-equipped with ICT knowledge. It emphasizes ways to improve the quality of teaching in ICT and emphasizes the significance of the teacher-student bond. The poster sparks student interest by showcasing advanced methods employed by schools to promote ICT, with teachers receiving training and participating in events to enhance their teaching skills and ICT knowledge.

My visit to NALI 2023 and participation in interview sessions enhanced my understanding of course materials. The event exposed me to a wealth of ICT-related information, including Virtual Reality, satellites, and education. For instance, an education-focused poster provided effective methods for learning ICT. I can leverage these approaches to elevate my knowledge, skills, and performance in the TIS course. Overall, the poster and event experiences contribute significantly to advancing ICT education and fostering a sense of gratitude among students towards institutions committed to nurturing them into ICT professionals.
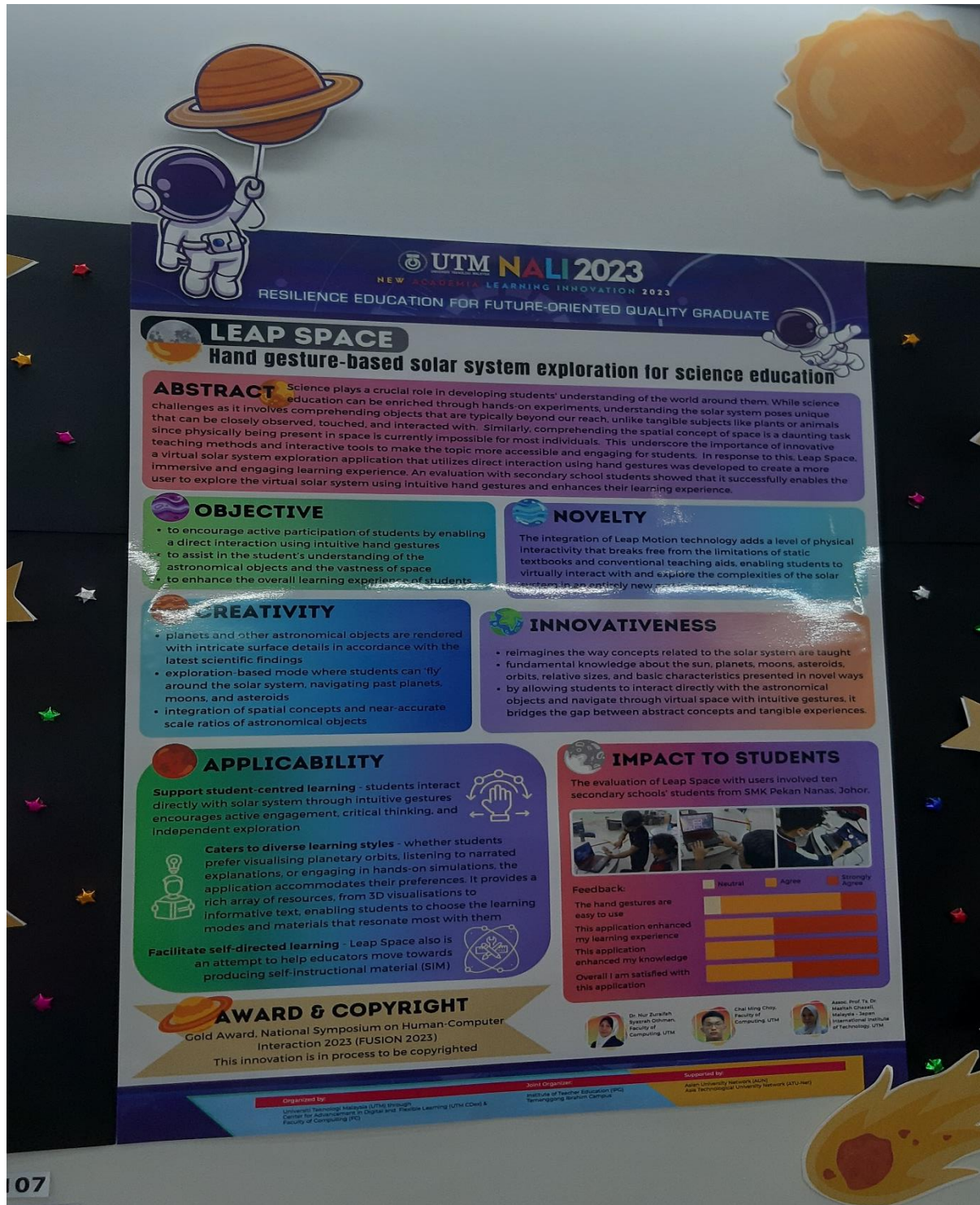
Explanation & Reflection:

In this day and age, input devices have developed from inputting command on a hardware like keyboard, mouse or devices that is attached to its original system unit to inputting command to utilizing hand gestures as a way of inputting command. This also applies to the presentation of information, moving from showing walls of text in a document to presenting information in a more immersive manner, such as physically interactable program in which students are free to interact with the program to learn about the information within. Leap Space, a virtual solar system exploration application combines both aspect of using modern input system of hand gesture and presentation of information through 3D models. The new way of presenting information opens new possibilities for students to learn information in new ways, as all

students have their own preferences in their learning methods be it preferring visualising planetary orbits, listening to narrated explanations or engaging in hands-on simulations, the application accommodates the students' preferences. It provides a rich array of resources, from 3D visualization to informative text, enabling students to choose the learning modes and materials that resonate with them.

Leap Space makes me feel that the technology and information system has the potential to expand the use of hand gesture as a method of input for different applications. For example, for the field of architecture learning, it allows the students to simulate the theory practice, in another case, its use in field of culinary can allow the students to practice cooking the dishes and preparing the ingredients without the risk of wasting as many ingredients due to failed attempts. This technology this project uses allow for a new level of physical interactivity to be added that breaks free from limitation of static textbooks and conventional teaching aids, allowing students to virtually interact with their learning materials. This more immersive method of learning also gives a better approach of learning for students that have ADHD (Attention Deficit Hyperactive Disorder) where they would have more trouble approaching the topic when taught as this method learning can incorporate physical movement within it.
It being a more interactive and immersive learning method, this allow it to support students-centred learning where it encourages active engagement, critical thinking and independent exploration within the student, this allow self-directed learning to be more easily facilitated, thus helping educators move towards producing self-instructional materials (SIM).

Hand-gesture based technology spark excitement within me beside the benefit it provides to the learning environment, it also brings benefits to different fields in all walks of life, be it tourism, information and communication technology, land or building promoter and more. My experience with this technology allows me to have better approach toward learning a certain topic, thus I wish it would be more widely used and incorporated in the future. All in all, I think that the usage of hand gesture-based technology in Modern Education could bring benefits to many students and allowing education industry to take a whole new step forward.

Explanation & Reflection:

The poster is introduced the ArchVision VR project, a initiative of FutuReal ArchiStudio Team#40 that aim to revolution architecture through the use of VIrtual Reality (VR) platform, combining Oculur VR hardware with unique applications to create an immersive learning. The project aims to increase students understanding of 3D architecture policy. Also, it preparing them for the challenges of industrial revolution 4.0.

The poster also acknowledges the challenges faced by the team, such as the difficulty of representing integrating important such as content and neighborhood development into the VR experience. Despite these challenges, the project succeeded, as evidenced by the awards and grants received, including the UTMER 2021, Adoption of Virtual Reality Technology for Architectural Design Studio in Malaysia. The poster also states the project objectives, profitability types, challenges and achievements well discussed, where innovations in architecture study.

This project was also established after the implementation of the Movement Control Order (MCO). This is because many students are unable to do physical learning activities. This course requires physical learning in order to understand better. Therefore, this project was created to make it easier for them to learn even online. Although there is no MCO now, this project can also be used as a preparation or reference for them.

It concludes by noting the commercial potential of the work, emphasizing its profound impact on architectural education. The ArchVision VR project is a promising example of how VR can transform and enhance the architectural learning experience.
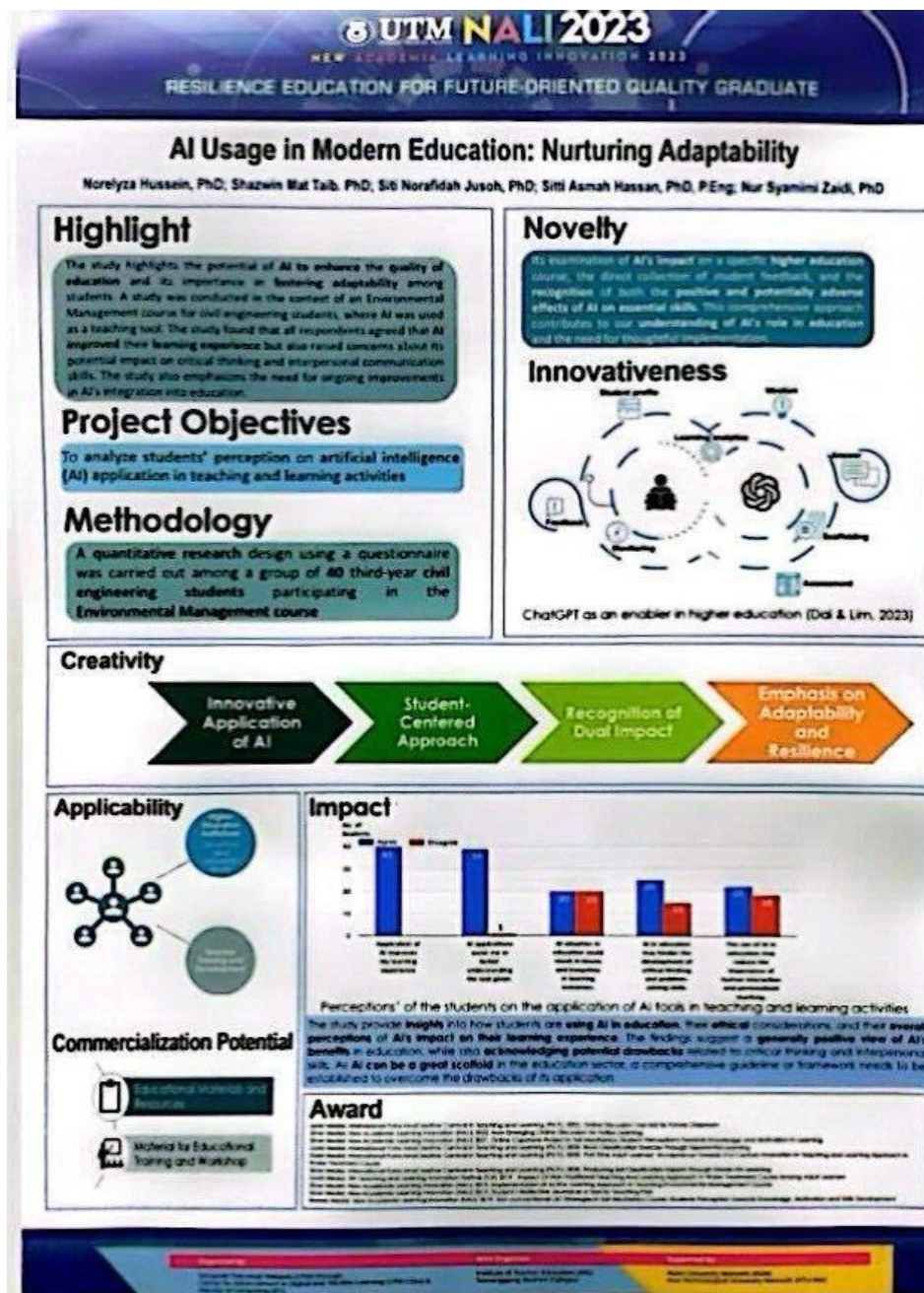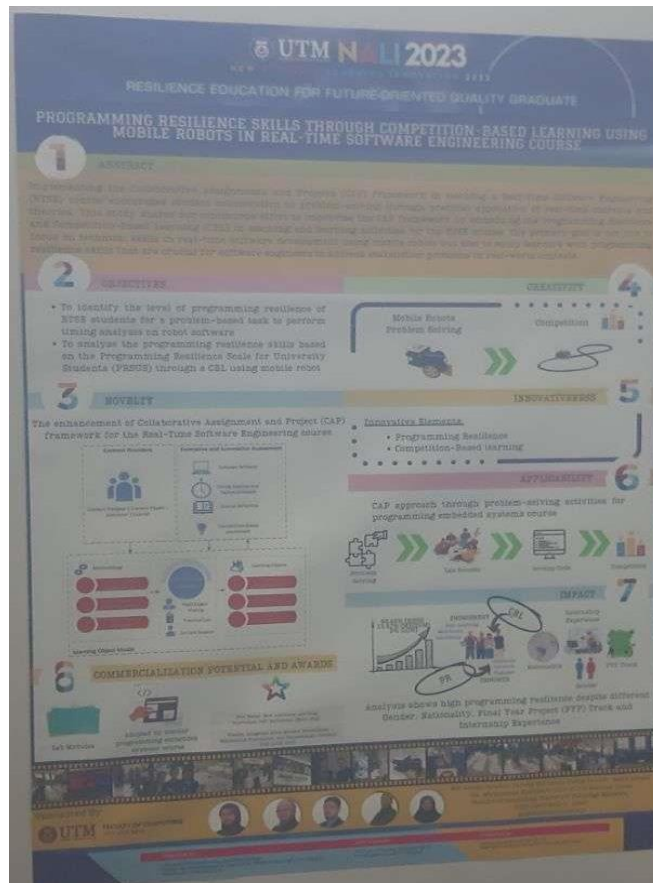
Explanation & Reflection:

The integration of AI in education has roots that trace back to the mid-20th century. Early attempts involved using computers to aid in teaching and learning processes. These systems were basic and primarily focused on delivering programmed instructional materials. New updates in January 2023 have shown that the evolution of AI in education continues to advance, with ongoing developments and trends shaping its integration in modern educational system. For example, NLP (Integration of Natural Language Processing) has improved student language learning experiences. AI-powered language learning platforms use NLP for speech recognition, translation and providing interactive conversational experiences that simulate real-life language usage. Another example is the DreamBox Learning. This adaptive learning platform uses AI algorithms to adjust the difficulty level of math lessons based on students' performance and learning pace. It provides personalized learning experiences tailored to individual needs.

Undoubtedly, AI can significantly impact the outcome of a specific subject in various ways by enhancing the learning experiences and improving student achievement. Take mathematics for example, AI algorithms can be used to create interactive problem-solving environments. For instance, the platform Brilliant.org used AI to provide personalized challenges and problem-solving exercises in mathematics. It adapts the difficulty of problems based on the student's proficiency level, fostering critical thinking and deepening understanding. From this activity, I have learnt that the interactive and adaptive nature of AI-powered learning platforms often leads to increased student engagement. These platforms adapt to students' abilities and interests, making learning more interactive and enjoyable. Enhanced engagement can positively impact knowledge retention and overall academic performance.

To me, this activity can spark an excitement among the student as it can give them a big eye-opener to many new things that is related to technology and our study environment. Student who is always seeking new information and technology will love it very much. I think visiting NALI 2023 and interview session can really help me to learn the course better as there is a variety of booth with different decoration and idea that worth spreading. Furthermore, the interviewee who dresses very smart have done their preparation decently and completely undoubt me of all my question which aid me a lot.

Explanation & Reflection:

In the rapidly evolving software engineering landscape, skill acquisition goes beyond traditional classroom methodologies. As we navigate the intricacies of software development in real-time, the demand for resilience in the face of challenges becomes increasingly important. This reflection paper explores the transformative experience of programming resilience skills through competition-based learning, using mobile robots as dynamic agents in a real-time software engineering course.

In an era where technological advances shape industry expectations, conventional approaches to software education must adapt. This paper explores the intersection of hands-on learning, competitive dynamics, and real-time software engineering to foster resilience—an indispensable quality for professionals in this dynamic field. By integrating mobile robots into learning environments, we delve into the intricacies of real-world problem solving, cultivating a deep understanding of the complexities that software engineers face in their professional journey.

Through this reflective exploration, we uncover the diverse impacts of competition-based learning on skill development. The synthesis of theoretical knowledge with practical application not only strengthens technical proficiency but also instills a resilient mindset. Participants in such learning environments are challenged to navigate unexpected obstacles, collaborate under time constraints, and iterate on solutions in real-time—skills that reflect the demands of the contemporary software engineering landscape.

Join us on a retrospective journey as we examine the symbiotic relationship between competition-based learning, mobile robotics, and resilience development in the context of real-time software engineering. Through introspective narrative, critical analysis, and learning, this reflection paper aims to explain the transformative potential of this pedagogical approach and inspire educators and students to implement innovative methodologies that empower the next generation of powerful software engineers.

Conclusion:

NALI 2023 proves to be an exciting event that was well worth the visit. Our group members are thrilled to visit events that is of the same style as NALI in the future if the opportunity arise. This event bring benefit to us because it allows us to learn more in depth about the integration of technology and information system within our education system. From this event, it impacts the outcome of the Technology and Information System course by introducing us to various methods of using combination of different hardware and software and utilizing databases, network, and communication to create new technologies and incorporate them into being an educational method. Our group have learned various impactful knowledge from this event, we got introduced to hand gesture technologies from Leap Space, cooperative learning experiences about OS (Operation System) from OS Zoo, improving STEM teaching through a management system, approaching theory practice in various field via a VR (Virtual Reality) application from Archvision VR and learning programming resilience skills among various other benefits. This activity sparks excitement in all our group members because we get our horizon on usage of technology and information systems expanded, using it in ways that we would not have known. The potential of the newly learned knowledge from this event being incorporated in our future endeavour also is also exciting for us. Visiting NALI 2023 and conducting the interview sessions help us to learn the course material better because we get the witness the knowledge we were taught or shown to be put into practice, allowing us to really know how they work in practice, what not visiting this event would have deny us of as reading about the course material is not the same as witness the real deal for yourself. Various hardware and software are shown in this event in creative ways, which are usually not mentioned in our course materials, allowing us to understand the topics to a deeper extend. The interview session also helps in learning the course material better as the interviewee explain to us clearly about the ways in which the technology is utilized in their project. They also go about explaining how the course materials in extra details according to their experiences. All in all, the visit to NALI 2023 event is worthed and an unforgettable experience, new knowledge learnt and new acquaintances met.