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**Title: International Conference and Exposition on  
Inventions by Institutions of Higher Learning  
(PECIPTA'19)—Innovation Beyond Imagination**

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## 1. INTRODUCTION

Recently, an exhibition, International Conference and Exposition on Inventions by Institutions of Higher Learning or preferably known as PECIPTA'19 was held at Dewan Sultan Ibrahim, Universiti Tun Hussein Onn Malaysia at 22nd and 23rd September 2019. This exhibition was opened for all educators to represent their research, innovation, and insights on improving teaching and learning lessons. The theme that was raised in this exhibition is Innovation Beyond Imagination which is interesting as it depicts how Imagination should evolve with high technology in this 21st century and how the educators are implementing it. In another side, PECIPTA'19 is also a platform for sharing and recognizing innovation products and research outcomes in teaching and learning practices. There was also competition, workshop and talk series which benefits the educators as they improve their competency to practice effective teaching and learning processes.

## 2. WORK PLAN

The Pecipta'19 was started on 22nd September and ended on 23rd September. Even though the exhibition only held for two days, but it is still able to attract a lot of students from the whole country to participate in it. We are fortunate to reach at Dewan Sultan Ibrahim on 23rd September by 3:00 pm before the closing of the event. Even though lots of the booth have closed up as the awards ceremony is started when we reached, but we still manage to separate us to different part, which we being focus to find some interesting booth that is mostly related to Information Technology as well as Computer Science such as creating the software that concerns about environment or creating some inventions to make our daily life easier. Basically, we tried to take as many pictures as we can in order to explore more information about it. Finally, after we discussed within the team, we have secured three of the booths as our target.

- VRelax: Stress Therapy Virtual Reality System by UNITEN
- Real-Time Driver Attentive Tool (RTDAT) by MMU
- Informer On Site Natural Disaster Reporting and Early Warning System by USIM

Around 4:30p.m, we started to dismiss as our bus are reaching soon. We had taken some pictures in front of the poster as proof that we joined the event. Finally, we had grabbed the chance to congrat one of the winners in Pecipta'19. Even though we missed some useful talk and keynote session, but we still manage to learn a lot about creativity and innovation of the youth nowadays.

### 3. DETAILED DESCRIPTIONS

It sounds interesting as the booth in Pecipta' 2019 has covered a lot of fields included agriculture, medical, information system, biological methods and others. Our team managed to get some research and explain briefly about the booth we chose.

#### 3.1 VRELAX : STRESS THERAPY VIRTUAL REALITY SYSTEM BY UNITEN

##### 3.1.1 PURPOSE

Stress has become one of the major concerns in today individual's wellness. Stress can be caused by various factors such as job issues, money issues, bereavement, family problems, illness, relationship problems and so on. Stress can be categorized into two groups which are positive stress and negative stress. Positive stress can be motivation and leading one's to be succeeded in his life. On the other hand, negative stress refers to unmanaged and prolonged stress that can lead to health problems and thus decrease in productivity of work. Stress-related to health problems such as heart attack and low body immunity can result in high medical expenses and thus consequently affect the quality of one's life. Meanwhile, emotional disruption such as depression and anxiety can lead to low productivity and then slow down the development of the economy in our country.

##### 3.1.2 HOW VRELAX WORKS?

In this booth, Virtual Reality (VR) technology is used in developing a system for stress therapy which is known as VRelax system. VRelax system is a virtual reality-based therapy system which provides a way to release user's tensions and allow them to relax in the middle of their hectic daily life. It is a complete and comprehensive solution that promotes mental, emotional and physical relief by encouraging users to reconnect with nature in their own place by providing them relaxing environment, soothing audio and comfortable chair. The relaxing environment in VRelax system includes high quality beautiful 3D scenes supported by research and high quality 360° videos with 8K resolution. Besides that, users can also customized solution for their local experience. Furthermore, soothing audios provide zikr and religious-based option and also flexible preference. The control system in VRelax system is developed based on one button multiple functions concept in order to ease users for using this system. With the aid of high-quality 3D and 360° technology together with relaxing sound effects, the problems of voice interruption, and user's poor imagination can be resolved and this technique can greatly improve the outcome of stress therapy compared to a conventional method by using pure imagination of users in order to release their stress. The combination of VR technology and comfortable chair results in VR Integrated Chair which has the following features such as touch screen display, single button with multiple functions, VR supported CPU, recline feature, HMD set, and storage area.

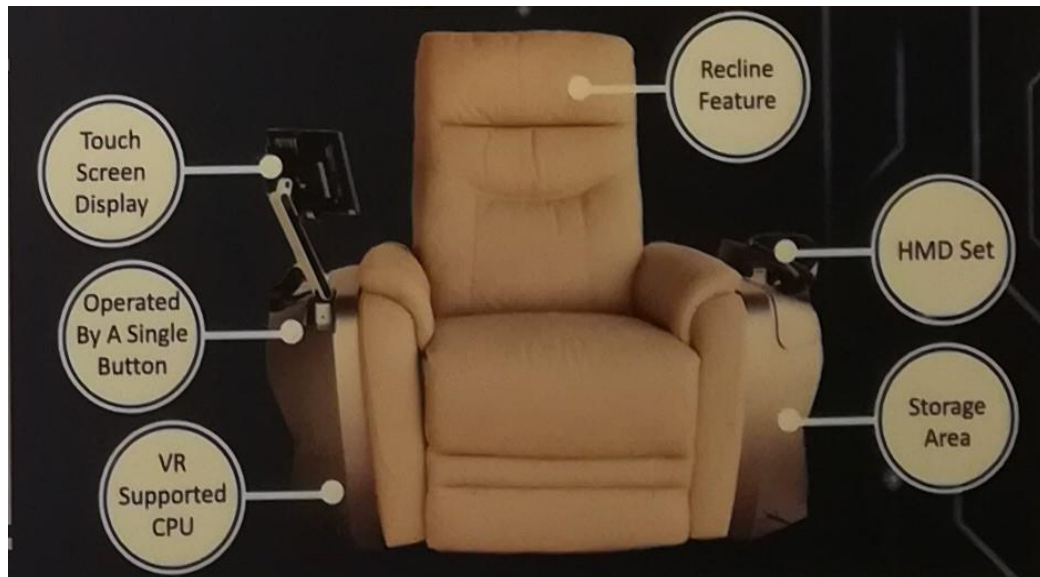


Diagram 1:VR Integrated Chair

### 3.1.3 APPLICABILITY AND COMMERCIAL POTENTIAL

This system is invented to cater to the needs of community and industry such as for staff well-being, elderly care, and psychology and counselling support. By providing VR Relax system to employees, employers can gain many benefits such as reducing the medical cost of employees, increasing the productivity of workers and consequently increase profits of companies, and also inducing positive thinking of workers. This system is extremely needed for corporations and companies related to innovation and creativity such as Google, Apple, and so on as by relaxing employees can induce more new and creative ideas which can benefit companies a lot. In the elderly care sector, VR Relax can be used to induce positive emotion of elders so that they can be more positive and confident regardless of their age, and physical conditions. This system is very useful in psychological therapy and counselling as it can help those who are suffering from mental and emotional problems as it can ease their problems.

### 3.1.4 EXPECTATION

Last but not least, this product has high commercial potential in the global market as it meets the need and eagerness of various sectors such as organizations, health care sector, and premium service provider in solving stress problems around the globe. I believe that this product can alter the method of stress therapy from the conventional method to a more effective and user-friendly method.

## 3.2 REAL-TIME DRIVER ATTENTIVE TOOL (RTDAT) BY MMU

### 3.2.1 PURPOSE

Road accidents are a global tragedy which causes uncountable cases on road involving loss of property, injuries and even fatalities, while this global tragedy shows an ever-rising trend over these days. In Malaysia, the number of road accidents shows an increasing trend from 2012 to 2017 ( <https://www.statista.com/statistics/794875/number-of-road-accidentsmalaysia/> ) and our death rates on road is the third-highest globally. According to statistics issued by Malaysian Institute of road safety research (MIROS), the main causes that contributed to road accidents in Malaysia are poor driver behaviour, vehicle behaviour and environment behaviour. Due to poor driver behaviour standing out at the top, it could be said that fatigue and reckless driving are major reasons for road accidents in Malaysia. Therefore, Real-Time Driver Attentive Tool (RTDAT) is invented in order to reduce road accidents in Malaysia.

### 3.2.2 HOW RTDAT WORKS?

Real-Time Driver Attentive Tool (RTDAT) provides assistance for the driver to be maintained attentive on the road. With the existence of such an assistance system, I believe that local drivers are able to reduce accidents on the road and thus tragedy can be avoided. Applications of a combination of fatigue and anger detection system, contextual information and data storage and analysis in RTDAT system are believed to be able to reduce road accident rates in Malaysia. In this system, RTDAT is activated once the driver starts driving. The camera installed in the car will capture the driver's face and send to the computational unit. Facial features such as eyes and mouth will be analyzed by the system. Warning in the form of audible sound will be executed as soon as fatigue or anger signs of the driver is detected. Nearest location of rest and relaxation (R&R) is navigated for the driver so that the risk of happening road accidents can be minimized before the driver continues on his journey. All result is stored in the cloud.

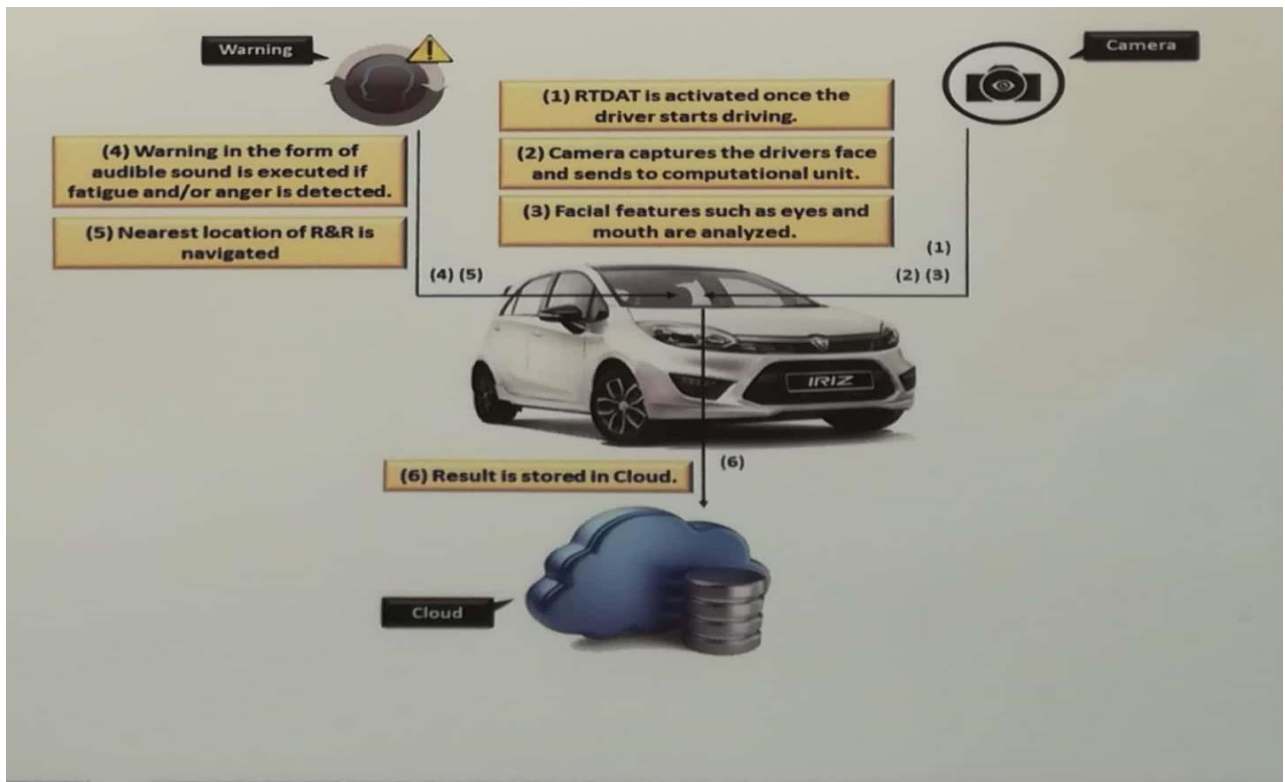


Diagram 2: RTDAT

### 3.2.3 IMPORTANCE OF RTDAT

In short, as Malaysian's awareness of safe driving is still low, this system is necessary to be introduced to every Malaysian and also to the world in order to reverse the rising trend of road accidents around the globe. As road accident rates are reduced, the productivity of nations will be increased and also together with the reduction of the medical cost that spent for road accidents. I believe that RTDAT will become one of the greatest inventions that contributed to the development of the human community and life quality. With the encouragement of both public and private sectors on this system, tragedy on road is possible to be minimized.

### 3.3 INFORMER ON SITE NATURAL DISASTER REPORTING AND EARLY WARNING SYSTEM BY USIM

#### 3.3.1 PURPOSE

Basically, it was the good news to say that since Malaysia is located at the safe geographical area, that's why our country will less likely to face the natural disaster such as earthquake, tornadoes, drought and others but it doesn't mean the tragedy would not happen. We are attracted to this booth because even though we are safe now, but we still need to be prepared for facing unexpectable condition.

The mobile application is known as "Informer on site", which the main purpose is to provide a better communication platform during the emergency occur. As we know, nowadays the mobile phone has become one of the most essential things for the community. Everyone is hard to get away from the mobile phone. That's why the mobile phone will play an important role to update the latest news to community during the tragedy happen.



Diagram 3: Informer on Site Application



### 3.3.2 HOW INFORMER ON SITE APPLICATION WORKS?

The mobile application is basically working with the cooperation of the community with the authorities. The users can easily update the information about the condition of the area which helps to remind the related authorities to take the action as fast as possible to reduce the rate of death in the disaster. Besides, I believe that this kind of mobile application is suitable to anyone as it provides a lot of information especially the contact info about the authorities. Therefore, the community can able to inform the situation immediately and reduce the risk of being harmed by the disaster.

### 3.3.3 IMPORTANCE OF INFORMER ON SITE APPLICATION

Besides to the community, the application is being hoped to give a better impact for the rescuers to estimate the disaster and being prepared well to start their rescue action. The rescuers such as fireman can get the medium information from the users. This will help the fireman to have complete preparation and avoid to bring too much or too deficient of stuff to save a life. It will also become the communication bridge between the users and the authorities as the users can ask all the questions related to the disaster. Therefore, it will become the assistant to the authorities to share their knowledge and survival skills to the users to increase the chance of being survived during the disasters.

Last but not least, the mobile application has provided coordination of the places in Malaysia so that the rescuers can reach the site at the shortest time. I would say that the mobile application also helps in save budget and time as the information can be shared through online, therefore lots of activities such as campaign, talk and some awareness program can be reduced. Anything can be done as most of people has their own gadget in daily life. The information can be transfer efficiently but in a different way.

## 4 REFLECTION

### 4.1 REFLECTION TO PECIPTA'19

In Pecipta'19, we can clearly see that there is a trend where most of educators took a step forward on improving teaching and learning lessons by using technology. The theme of this exhibition was “Innovation Beyond Imagination” which depicted how imagination should evolve with high technology in this 21<sup>st</sup> century and how the educators are implementing it and it encourages people to be innovative and creative. Thus, we can clearly know that Pecipta'19 is playing an important role as a platform for sharing and recognizing innovation products and research outcomes in teaching and learning practices. In the exhibition, some of the booths tried to attract student's interest by making their inventions to be funny through merging gaming elements with their inventions. By making booths to be more appealing, a positive perspective about learning can be planted in younger generations and at the same time, life-long learning process can be introduced to public. Competition, workshop, and talk series were held in the exhibition as it can benefit the educators as well as can improve their competency in performing more effective teaching and learning processes, even producing innovative products.

#### 4.1.1 REFLECTION TO VRELAX

After being knew more about VRelax, we feel that it is necessary to cope with the stress. We have been informed that if we can't cope with stress well, lots of negative issue will come such as suicide. I feel that VRelax will have a bright future as it is suitable to everyone from different classes if more data will be provided. Adults can increase their productivity, creativity and engagement to work while the old people can use it to reduce stress and pain. As conclusion, VRelax will contribute to the society especially field related to hospitality.

#### 4.1.2 REFLECTION TO RTDAT

Lots of work being done by authorities to reduce the risk of accidents on the road. As the RTDAT published to the society, it will help the drivers to become safer on the road. But it depends on the attitude the driver. If the driver could not perform well on the road, it is useless to have this kind of application. I believe that RTDAT should be promoted around the world to help all the road users to be more alert to the all unexpected dangers that could be happened on the road.

#### 4.1.3 REFLECTION TO INFORMER ON SITE

Effective communication is the most important element in our daily life to make sure our message will be delivered accurately to others. The Informer on Site is purposely to create a platform between society and authorities to be together to reduce the effects from the disaster. With the cooperation from both sides, the application will really reduce the impact and save lots of the life. That's why accurate information should be provided by one side and being transferred successfully to another side. It is better if the application can be implemented around the world not just in being Malaysia.

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