

The e-Merit system of Tun Hussein Onn College: An Online System Development in Fronting The 4.0 Industrial Revolution

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ABSTRACT: Residential colleges carry the responsibility and main role to provide residence and accommodation for students, and as a 'second home' for them to explore new soft skills to build a great personality. The time spent by students in the university and residential college is significant for their growth in term of gaining new knowledge's and skills. To make the management of the merit system comprehensive, an online system is introduced as an alternative method to give a precise and accurate decision to select residents with the qualification to stay in residential college for the upcoming study session. Before this, the merit system was done manually. Therefore, there are some problems in the distribution of merit marks to the students like left out of names, low merit marks and unclear records. In consequence to the problems, a development of e-Merit system is done. The purpose of this study is to identify the responds from KTHO residents towards the e-Merit system that was done to encourage the involvement of students in college and university programs. Next, to analyze the understanding of KTHO residents about the e-Merit system. The Purposive Sampling technique is used to select the samples of 251 respondents. The result of this study shows that the residential college's practice of the e-Merit is optimum. The e-Merit system is students friendly, more efficient in term of time and a concrete proof of college resident involvement in college and university programs.

Keywords- Merit system, 4.0 Industrial Revolution, College programs, Student involvement, Tun Hussein Onn, Universiti Kebangsaan Malaysia

Date of Submission: 25-08-2019

Date of acceptance: 09-09-2019

I. INTRODUCTION

The e-Merit system is developed in Tun Hussein Onn College, The National University of Malaysia in 2017/2018 study session as a proactive method to take the challenge of Industrial Revolution 4.0. The main purpose of the development of the e-Merit System is to become one the major criteria in the student selection process for every semester and study session. It also aims to record activities or programs joined by college students. However, the e-Merit system also gives recognition to students who followed and joined college and university activities. The recognition is not just on college level but also on national and international level through the achievements gained.

The growth of IT culture nowadays is rapid and it has become Malaysian aspiration to mold individuals with current IT literacy. Hence, the development of e-Merit system is an alternative step for KTHO in accepting this challenge. The rational in the implementation of this e-Merit system is to become the alternative evaluation by the college management for the selection of students if there is extra application (applications more than the offers) from the students. Other than that, this system can give a more comprehensive and just evaluation of students' active contributions in college activities. Indirectly, this system can encourage students to get involved in scheduled plans to acquire merits thus stay in the college in the upcoming study session. Seeing that, the records achieved at the end of each semester is used by the KTHO management as a basis to determine whether a college resident in a particular semester is qualified or unqualified to stay in KTHO residential college. It becomes a complete reference, apart from the SMPWeb for the students, to attain information precisely and

quickly in case of emergency. In accordance to that, students take initiatives and completely understand about their involvement in college and university. The e-Merit system also increases students' spirit to join held programs. On the other hand, residents would feel positive and more aware about the information while improving their soft skills.

Problem Statement

On the principle, there has to be some relevant and concrete reasons to allow the implementation of the e-Merit system. The manual e-Merit system is complicated and inefficient in term of time and college management. This is the reason why the management will do annual evaluations towards the involvement and contributions of college residents for the placement in the following study session. Students involvement in college programs are not seen comprehensively. This matter becomes a fundamental problem that is being discussed in this article, and a factor to further questions about the effectiveness of the e-Merit system in improving the college involvements, KTHO residents responds and their understanding or comprehension about the e-Merit system.

Research Objectives

The objective of this study is:

- 1) To identify the responds from KTHO residents about the e-Merit system that has been implemented as an encouragement for the residents to involve in university and college programs.
- 2) To analyze the understanding and comprehension of the e-Merit system.

II. LITERATURE REVIEW

The appearance of technology has changed the landscape and shaped the industrial revolution. In consequence, there has also been the appearance of electrical energy and burning engines that function to replace human and animal resources (Remirez-Mendoza et al 2018; Sung 2018; Reischauer 2018). Then, technological devices like telephone, car and heavy machines were invented and has changed the world. Industry was introduced with the emergence of digital technology and internet. Various applications were adapted into daily lives and the society benefit from this technology development. Now, the Industrial Revolution 4.0 is witnessing the 'Internet of Things' (IoT) becoming a reliance for development in spite of time and space (Vaidya et al. 2018; Rouhoumaa et al. 2018; Guangli et al. 2018).

The Industrial Revolution 4.0 emphasizes on the development of virtual reality technology without using too much human energy, and that gives a lot of impact in all aspects of life. Through the context of the development in Tun Hussein Onn College (KTHO), it is among the most important and gives a strong impact especially towards the college residents. The online technology system approach is a part of the whole big picture of the progressiveness of an organization (Isa & Said 2016). The online system and computerization is able to ease managements (Othman et al. 2018). Thus, the existence of the e-Merit system generally can produce high quality human beings with additional values as a university graduate.

From the context of residential college, the time has come for the role of college to be improved to a new benchmark, which is to increase function effectiveness while staying relevant. This matter was emphasized by Othman et al. (2018) explained that e-Merit is characterized as accessible and systematic. Residential colleges can also function as the second study center apart from faculties. Programs held focuses more on the development of identity, knowledge, soft skills and the transformation of ways and styles of thinking. It will finally produce students with balanced mind and holistic values (Omar, 2018).

Students failure to penetrate the job market is always being related to the issue of graduates not having the criteria needed by industry. Some of the criteria are soft skills like skills, communication and personal quality plus interpersonal skills (Lokman & Osmayati 2010). Nowadays, merely academic is not enough to guarantee work opportunity due to high competition. Therefore, students need to prepare themselves by mastering soft skills (Noor Azyani 2012). In accordance to that, student involvement had to be improved as an initiative for them to face challenges after finishing their studies.

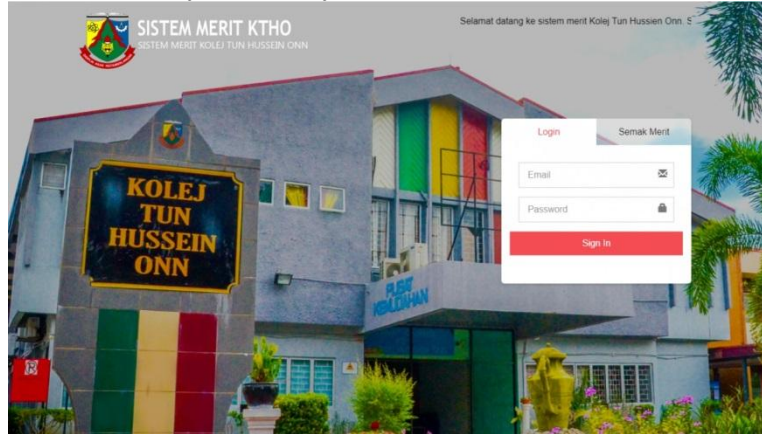
Based on the discussion above, it can be concluded that the appearance of Industrial Revolution 4.0 encourages students to move forward along with its growth. This also implies to management and administration that applies more human resources than machine energy. For that, the e-Merit system is a cornerstone to measure participation, involvement and achievements of KTHO residents. It becomes a method to build student generic skills while molding a competent and productive graduate. College students also need to prepare themselves with intrapersonal and soft skills.

III. METHODOLOGY

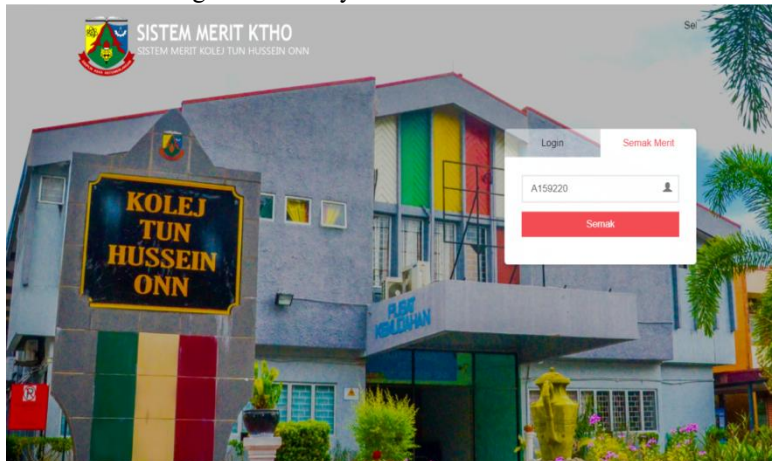
This research implies a quantitative method to identify responds the residents of Tun Hussein Onn College (KTHO) towards the implementation of the e-Merit system to encourage student participation on

college and university levels. The research involves second year and final year students (third and fourth year). A qualitative approach uses Purposive Sampling technique and involves 251 respondents. The set contains four sections. Section A collects respondents' demographic information. Section B is related to academic information, section C is on the participation of KTHO residents in college and university programs while section D is the respondent's responses and views about the e-Merit system. The data processing was done with the software Statistical Packages for Social Sciences (SPSS) 22.0 version and the data analysis uses the descriptive analysis (mean and frequency).

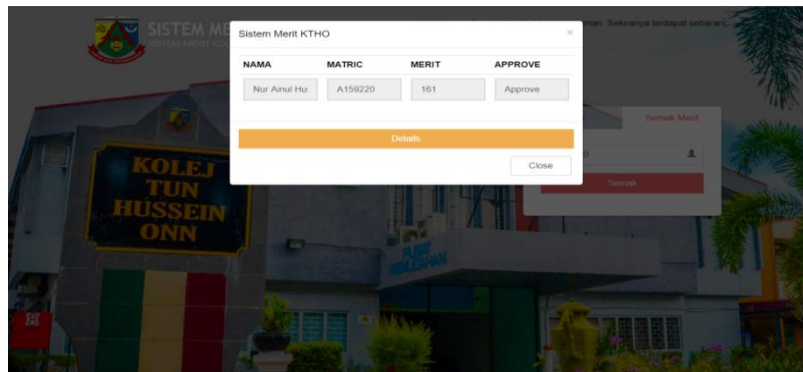
Procedure to Check Merit Marksby e-Merit System



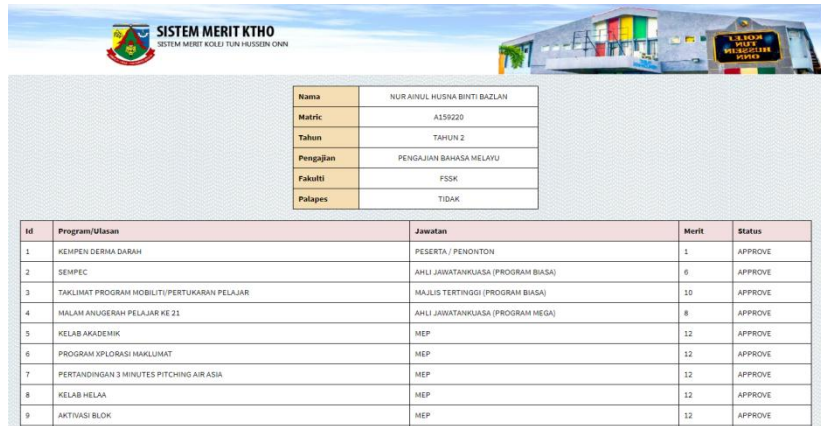
Main page of Tun Hussein Onn College's e-Merit system



Students' Merit check menu



Total of merits collected by student



Nama	NURAINUL HUSNA BINTI BAZLAN
Matric	A159220
Tahun	TAHUN 2
Pengajian	PENGAJIAN BAHASA MELAYU
Fakulti	FSSK
Palapes	TIDAK

ID	Program/Ulasan	Jawatan	Merit	Status
1	KEMPEN DERMA DARAH	PESERTA / PENONTON	1	APPROVE
2	SEMPEC	AHLI JAWATANKUASA (PROGRAM BIASA)	6	APPROVE
3	TAKLIMAT PROGRAM MOBILITI/PERTUKARAN PELAJAR	MALIS TERTINGGI (PROGRAM BIASA)	10	APPROVE
4	MALAM ANJUSERAH PELAJAR KE 21	AHLI JAWATANKUASA (PROGRAM MEGA)	8	APPROVE
5	KELAB AKADEMIK	MEP	12	APPROVE
6	PROGRAM XPLORASI MAKLUMAT	MEP	12	APPROVE
7	PERTANDINGAN 3 MINUTES PITCHING AIR ASIA	MEP	12	APPROVE
8	KELAB MELAA	MEP	12	APPROVE
9	AKTIVASI BLOK	MEP	12	APPROVE

Students can see the list of programs participation and print the list

IV. RESULTS

Respondents' Profile

The research respondents consist of 68.9% (173 person) female respondents and 31.1% (78 person) male respondents. As many as 67.7% (170 person) respondents consist of residents at the age of 21-22 years followed by respondents aged 19-20 years old with 23.5% (59 person). Next, as many as 79.7% (200 person) are Malay, 15.9% (40 person) are Chinese and 4.37% are from the ethnic Indian and others. The residential blocks consist of 12 blocks in Tun Hussein Onn College. Block A respondents are of 13.5%, Block B (13.1%), Block C (18.3%), Block D (12.0%), Block E (12.0%), Block G (4.38%), Block H (5.57%), Block J (5.17%), Block K dan Block L (3.58%), Block M (1.99%), Block N (5.17%) dan Block P (1.59%).

Table 1 Respondents' Profile

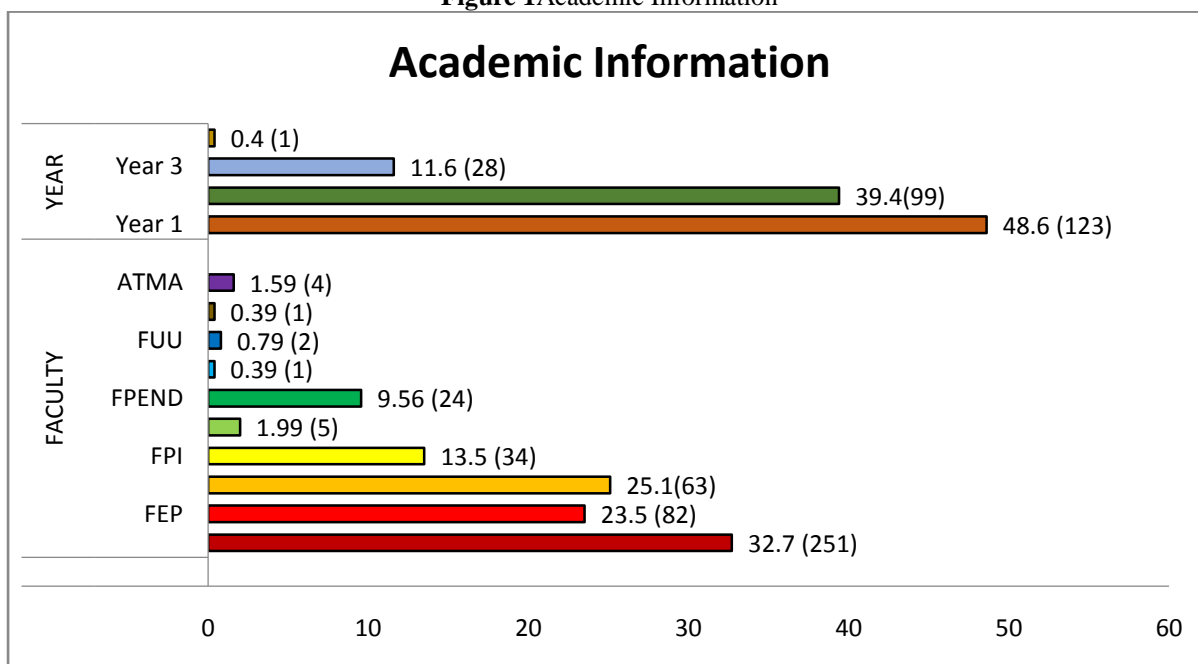
Component	Category	No	Percentage
Gender	Male	78	31.1
	Female	173	68.9
Age	19-20	59	23.5
	21-22	170	67.7
	23-24	10	3.98
	25-26	8	3.18
	27 and above	4	1.59
Ethnic	Malay	200	79.7
	Chinese	40	15.9
	Indian	8	3.18
	Others	3	1.19
Religion	Islam	204	81.3
	Buddha	34	13.5
	Hindu	5	1.99
	Christian	8	3.18
Residential block	Block A	34	13.5
	Block B	33	13.1
	Block C	46	18.3
	Block D	30	12.0
	Block E	30	12.0
	Block G	11	4.38
	Block H	14	5.57
	Block J	13	5.17
	Block K	9	3.58
	Block L	9	3.58
	Block M	5	1.99
	Block N	13	5.17
Block P	4	1.59	

N= 251,100%

Academic Information

All the respondents consist of undergraduate students from FSSK as much as 32.7% (82 person) respondents. Next, FEP (23.5%), FST (25.1), FPI (13.5%), FKAB (1.99%), FPEND(9.56%), FTSM (0.39%), FUU (0.79%), FSK (0.39) and ATMA (1.59%). Respondents' academic year of study showed that the first years are of 48.6% (123 person), second year as many as 39.4% (99 person), third year 11.6% (28 person) and fourth year as many as 0.4% (1 orang) respondent.

Figure 1 Academic Information



N=251, 100%

Participation of KTHO Residents in College Programs for 2018/2019 session

Figure 2 shows the category of programs held by KTHO along the 2018/2019 study session. Based on the result analysis, respondents that participate in volunteerism programs are of 41.8% (105 person), followed by sports programs at 35.1% (88 person). Next, respondents showed the result for Academic and Annual Appreciation with 33.1% (83 person), leadership with 30.7% (77 person), cultural with 30.3% (76 person), spiritual and unity with 27.1% (68 person) and 25.6% (65 person). For welfare category ada, the percentage is at 22.7% (57 person) and entrepreneurship at 17.6% (45 person). In conclusion, results have shown that the respondents are more likely to join volunteerism programs as it is the most held program in KTHO. On the other hand, positive culture were also molded among respondents by giving out to the target groups, for example the disabled people, single mothers, the orphans and the countryside communities.

Figure 2 Categories of Programs Held by Tun Hussein Onn College

Category	No	Percentage
Leadership	77	30.7
Academic	83	33.1
Welfare	57	22.7
Entrepreneurship	45	17.9
Cultural	76	30.3
Spiritual	68	27.1
Volunteerism	105	41.8
Unity	65	25.6
Sports	88	35.1
Annual Appreciation	83	33.1

The result of the research had shown that respondents have high participation in every program. The outcome had shown as many as 35.5% (89 person) respondents have a position in clubs/activities/programs that they joined. Almost 37% of the respondents often attend the club, activity and program meetings, as every progress and work will be updated in the meetings. They also feel that the programs they attended are effective and have objectives and aims. Next, as much as 41.8% of the respondents stated that they received so many new skills throughout joining the clubs, activities and college programs. As many as 42.6% (107 person) stated that at the end of the program, they gained a lot of new knowledge and information like effective time management, how to deal with authorities and others.

Table 3 Participation throughout Programs

Statement	Strongly Disagree	Disagree	Slightly Agree	Agree	Strongly Agree
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	Yes	%	Yes	%	Yes	%	Yes	%	Yes	%
I have positions in the club/activity/program that I joined	28	11.2	24	9.6	49	19.5	61	24.3	89	35.5
I attend the meetings of the club/activity/program	11	4.4	13	5.2	58	23.1	76	30.3	93	37.1
Program has objective and aim	9	3.6	6	2.4	60	23.9	90	35.9	86	34.4
I gain various new skills	7	2.8	10	4.0	49	19.5	80	31.9	105	41.8
I gain new knowledge	8	3.2	7	2.8	42	16.7	87	34.7	107	42.6

Comprehension and Views of KTHO Residents about the e-Merit System

The residents of Tun Hussein Onn College (KTHO) was introduced to the e-Merit system. Due to that, almost 53% of the respondents stated that they know about the implementation of the e-Merit system in KTHO during the 2017/2018. However, only 31.1% of the respondents know that Tun Hussein Onn College is the only college that implement this e-Merit system. To access to the e-Merit system portal, respondents have to access to www.ukmktho.com and as many as 41.8% have accessed the portal. Next, almost 38% strongly agree that the e-Merit is accessible and gives correct information. Other than that, as many as 38.2% (96 person) respondents agree that the e-Merit system encourages them to join college and university programs.

Next, respondents' comprehension showed that only 34.3% of the respondents agree that the distribution of the merit marks for each category is relevant. As many as 35.1% (88 person) respondents stated that they know that demerit will be given if any of the student disobey the college rules and they can check it in the e-Merit system.

Other than that, the respondents' comprehension showed only 34.3% respondents agree about the e-Merit system being very systematic, neat and easy to understand. Next, as much as 41.0% (103 person) agree that the e-Merit system teaches them to be responsible towards their participation in college and university. As many as 41.4% (104 person) agree that their level of discipline has increased towards the participation and rules of the programs. However, almost 12% of the respondents strongly agree that they are unclear about the function of this e-Merit system for them. This is supported by 37.5% of the respondents thinking that the e-Merit system should be widely spread.

Figure 4 Comprehension and Views of KTHO Residents about the e-Merit System

Statement	Strongly Disagree		Disagree		Slightly Agree		Agree		Strongly Agree	
	Yes	%	Yes	%	Yes	%	Yes	%	Yes	%
Knows that the e-Merit system was implemented in the 2017/2018 session	7	2.8	5	2.0	35	13.9	72	28.7	132	52.6
Knows that the e-Merit system was implemented at KTHO only	23	9.2	12	4.8	72	28.7	66	26.3	78	31.1
Accessed to www.ukmktho.com portal to check their merit marks	18	7.2	9	3.6	46	18.3	73	29.1	105	41.8
The e-Merit system is accessible	12	4.8	7	2.8	46	18.3	91	36.3	95	37.8
The e-Merit system encourages participation on college and university levels	13	5.2	2	0.8	51	20.3	96	38.2	89	35.5
Distribution of marks for each category is relevant	14	5.6	13	5.2	60	23.9	86	34.3	78	31.1
Demerit given to students who disobey college rules	15	6.0	6	2.4	67	26.7	75	29.9	88	35.1
The e-Merit system is systematic, neat and easy to understand	12	4.8	7	2.8	57	22.7	85	33.9	90	35.9
The e-Merit system teaches responsibility	10	4.0	6	2.4	46	18.3	103	41.0	86	34.3
Their self-discipline increases	11	4.4	5	2.0	50	19.9	104	41.4	81	32.3
The function and important of e-Merit system towards residents is unclear	45	17.9	67	26.7	73	29.1	37	14.7	29	11.6
The promotion of e-Merit system should be widespread	12	4.8	4	1.6	73	29.1	68	27.1	94	37.5

V. DISCUSSION

Status of participation and involvement of KTHO Residents towards the activities and programs in college and university

Career and life skills are referred to as how an individual prepares himself/herself to face challenges in their future careers. The best time for the preparation when one is in a higher education level (lecture halls and

residential colleges). In the lecture hall, students learn about their specific courses and skills related to their programs. While in the residential college, they learn new knowledge's that can't be found in the classrooms like soft skills. Residential college opens up chances and opportunities for students to focus on their talents, passion and skills. This is aligned to the market demand that emphasizes more on soft skills. To gain soft skills, students are given the opportunity to participate and involve actively in activities and programs provided since the early of their study session.

With the existence of this e-Merit system, results had shown the trend of student participation in university and college programs. Students' focus is more on the passion and demand of joining the program. With that, The National University of Malaysia has fulfilled the demand to shape the personality and soft skills of the students. Now, the high student participation in university and college programs had shaped their identity, soft skills development and made them more competent and competitive.

Readiness of KTHO Residents towards the e-Merit System

KTHO residents had shown a positive perception on the e-Merit system. This is due to the clear explanation given to all of the residents in the early of the study session or Minggu Mesra Mahasiswa (MMM) about the role and importance of e-Merit system. The explanation includes the calculation of merit marks, type of merits, college and university programs and levels of participation. Therefore, KTHO residents are more ready to plan for participations and they always work hard to achieve high merit marks based on the merit guide prepared.

Limitations And Further Research

This research was done on Tun Hussein Onn College, The National University of Malaysia. Therefore, the further research should include the combination of merit and soft skills to evaluate the effectiveness of this implementation and to polish then shape the potentials of KTHO residents. As the research sample is limited, further research could be done widely, by including genders, faculties and merits.

VI. CONCLUSION

The implications of the e-Merit system had played a big role in determine the student participation in college and university programs. It also eases the selection of students who qualify to stay in the college, based on some classifications for example participation and achievements of KTHO residents. Residents' perception should that the e-Merit system is believed to be easy, transparent and efficient. This positive response proved that e-Merit system reached the standard. In conclusion, this system should be continued and improved in Tun Hussein Onn College.

ACKNOWLEDGEMENT

The writer expresses high gratitude to all residents of Tun Hussein Onn College, The National University of Malaysia. The writer also takes this opportunity to extend utmost gratitude to The National University of Malaysia for funding the cost of research through the *Strategic Research Fund of The National University of Malaysia* KRA-2018-031 and KRA-2017-038.

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Zurina Ahmad Saidi" The e-Merit system of Tun Hussein Onn College: An Online System Development in Fronting The 4.0 Industrial Revolution" International Journal of Humanities and Social Science Invention(IJHSSI), vol. 08, no. 9, 2019, pp. 49-56