**INITIAL RESEARCH PROPOSAL FORM**

(also referred to as ‘Statement of Intent Form’)

***To be submitted by the researcher to the Institute Research Sub-Committee (IRC)***

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| **Research Title:**  Enhancing the museum experience using Augmented Reality | |
| **Institute name**  **Institute of Information & Communication Technology** | |
| **Course / Programme:**  **Bachelors of Science (Hons.) in Software Development** | |
| **Level and year of study**  **Level 5, 2nd year 2017/2018** | |
| **Main area of study being proposed:**  The main area of the study is Augmented Reality, A museum will be fitted with markers over specific places which when a mobile device with a camera it will recognize the pattern and in turn display the appropriate model.  The study will focus on enhancing the experience of the museum goer. Description of the item in detailed information will be shown on the device with animation or a model.  Accommodating for different ages and disabilities is important so text size and sound will be implemented but optional  Once the prototype will be finished it can be implemented in every museum all there is to change is the different models and text. | |
| **Name of Researcher:**  Axel Scicluna | **Researcher’s I.D. Number:**  0211197(M) |
| **Signature of Researcher** | **Date of submission of Form** |
| **Name of Tutor (or Recommended Tutor):** | |

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| **Personal Motivation for the Choice of Research Theme.** |
| In this day and age as technology advances some things are being forgotten such as museums and libraries or other facilities which young people call "Boring Places".  These facilities help improve us in many ways, some gives us knowledge, and some give us something to admire like art but if people do not go to these places they will start to shut down and we could lose them forever.  Young people do not go to museums which they have to pay, in 2014 out of 2,129,518 people who paid to visit a museum, only 233,114 were young people (Survey, 2014). Technology is there so that we can improve on our old ways, so I want to help make these places more appealing to young people or give them an excuse to visit the museum again. |

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| **Outline of Key Literature and Theoretical Framework or Propositions.** |
| *When someone is talking about Augmented Reality some might get it confused with virtual reality, both subjects may overlap however virtual reality completely immerse the user into the virtual word leaving only his motions from the real world. While Augmented Reality can be more liberal and take elements in and out from the real world, Once you remove almost every element from the real world the application would be called a virtual reality. The removal of objects from the real world in Augmented reality is called Mediated or Diminished Reality.*  *(Recent Advances in Augmented, 2001)*  *There are 3 major devices which can be used to have Augmented Reality or Virtual Reality. Hand Mounted Displays which are most commonly used for Virtual Reality since it blocks all the environment however Augmented Reality can still be used on Hand Mounted Displays. You can use a camera to relay the outside view from the headset but in most cases, it will be on a delay and may make people have motion sickness or you can use mirrors to see the outside world and project the results over the eyes of the user.* *The most popular device for Augmented Reality is a mobile Device, since it can be moved and twisted it can feel more real than a clunky device on your head. They employ the same method as the head mounted displays with the video see trough but without the motion sickness. One can also use the many sensors available on the device for example the gps, accelerometer, gyroscope, etc.*  *The last possible medium is spatial displays, these usually involve a projector projecting onto an object or on a screen. These projections can be used to interact with the object and make it feel more alive.*  *(Augmented reality: An Overview,2010)* |

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| **Significance of the Study.** |
| *This study would generate Interest into places which are not being frequented and will give a reason for people to revisit*    *People will remember more about the exhibit than if they went without the application. The flashy menu with the information and the interaction will make people more engaged in the exhibit.*  *Usually when going to a exhibit people go look at the object and go on to the next, only looking at the information when there is something that interests him/her. With the application there would be more chance that they would take interest into the object.*  *The Bigger text would make the exhibit friendlier to people who normally would look at the objects only, but since the text are readable they can enjoy reading it without having to squint* |

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| **Hypotheses and/or Research Question/s** |
| *Hypotheses: It is possible to make the experience of going to a museum feel more engaging and fun using augmented reality.*  *Research Questions*  *Can an entire museum experience be enhanced using an augmented reality application?*  *Will the mobile app make the museum more popular, Especially with young people?*  *Is it feasible enough to for businesses to invest?* |
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| **Target Participants and Research Methods for Data Collection and Analysis** |
| *The target participants are people who do not usually visit museums especially young people who don’t go or rarely go.*  *Quantitative*  *I Would collect a group of people and make them go through the museum without the app and on the 2nd time they would go with the app, after they finished both runs I would ask them*  *-which one would they prefer*  *-Would they come again?*  *-did the app make you remember more?*  *-did the app enhance the museum experience?*  *Qualitative*  *I would ask different museums these questions*  *-do you have interactive elements in your museum?*  *-do you think adding interactivity into the museums will increase attendance especially with young people?*  *-would you add a polished version of the proposed system?* |

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| **Ethical Considerations.**  **Refer to *guidance points below. You are also additionally required to read MCAST Document 074 ‘Research Ethics Policy and Procedure’ that is available on the College website via link*** [***http://www.mcast.edu.mt/MainMenu/Full-TimeCourses/Rules,PoliciesandRegulations.aspx***](http://www.mcast.edu.mt/MainMenu/Full-TimeCourses/Rules,PoliciesandRegulations.aspx)   1. *Research shall be conducted in such a manner so as to avoid any psychological and physical harm to humans and animals and financial damage to organizations* 2. *Only the supervisor and examiners will have access to any data gathered.* 3. *Participants will remain free to withdraw from the study at any time without having to provide any reason. In the case of withdrawal, all the records and information collection will be deleted.* 4. *The participant, who is the sole proprietor of the data provided, is granting that such data would be processed for this study purposes only.* 5. *The data collection process will be a transparent process.* 6. *All transcriptions and/or electronic recordings reflecting the data collected, once exhausted, are to be deleted* 7. *Confidentiality, anonymity and data protection procedures are to be ethically abided by.* 8. *The researcher would provide a soft copy of the study to the participant, if required.* |
| *Enter details here regarding possibility of issues regarding confidential personal data:*    *Only the age and the gender will be collected as personal data.* |
| *Enter details here regarding possibility of physical harm:*  *No physical harm is done to people*  *No animals will be used in this research.* |
| *Enter details here regarding possibility of moral harm:*  *No moral harm to people.* |
| *Enter details here regarding possibility of business harm:*  *There are no Augmented Reality aided Museums in Malta, it just provides an advantage over other museums at most.* |

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| **Anticipated Contributions of the Study.** |
| *This study might invoke more interest into Augmented Reality which is an extremely flexible tool which can be used in almost every situation. The more people are aware of Augmented Reality the quicker and bigger it can grow.* |

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| **Dissertation Project Plan.** |
| - Literature Review: As the SOI is accepted I will start from November till start of January  - Visualizing and design/build models for prototype: start of January to end of January  - Methodologies & Prototypes: all of February  - Analyze results and create graphs: early march till early April  - Presentation: Go through the project and change any needed changes + construct the document in LaTeX.: End of April.  - Conclusion and Abstract: Beginning of May to June.  -Completion Submit assignment, on June |

**List of Key References:**

## References

Azuma, R., Baillot, Y., Behringer, R., Feiner, S., Julier, S. and MacIntyre, B. (2001). *Recent Advances in Augmented Reality*. [ebook] pp.1-2. Available at: <https://www.cc.gatech.edu/~blair/papers/ARsurveyCGA.pdf> [Accessed 2 Mar. 2018].

Carmigiani, J. and Furht, B. (2018). Augmented Reality: An Overview. [online] pp. 9-12 ResearchGate. Available at: <https://www.researchgate.net/publication/227164365_Augmented_Reality_An_Overview> [Accessed 2 Mar. 2018].

A survey conducted among 72 museums and historical sites across Malta and Gozo revealed that these sites registered 2.3 million admissions last year, up by 7.5 per cent over 2013. (2014). [ebook] p.5. Available at: <https://nso.gov.mt/en/News_Releases/View_by_Unit/Unit_C1/Living_Conditions_and_Culture_Statistics/Documents/2015/News2015_226.pdf> [Accessed 9 Mar. 2018]

***This section is to be filled in by the representative of the Institute Research Sub-Committee prior to forwarding of this Form to the ‘MCAST Research Ethics Committee’ for final ethics approval:***

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| ***Nature of ethical consideration*** | ***Outcome (\*)*** | ***Comments*** |
| *Consideration of possibility of issues regarding confidential personal data:* |  |  |
| *Consideration of possibility of physical harm* |  |  |
| *Consideration of possibility of moral harm* |  |  |
| *Consideration of possibility of business harm* |  |  |

***(\*) Legend to record outcome by Institute Research Sub Committee:***

***A***  *– Ethical considerations have been* ***addressed appropriately*** *by Researcher;*

***B*** *– No (****Nil****) relevant ethical considerations are applicable under purpose of study as described by Researcher.*

***C*** *– Ethical consideration have* ***not been addressed appropriately*** *by Researcher;*

***D*** *– Applicable ethical consideration have* ***not been considered*** *by Researcher.*

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| **Details of Representative to the ‘Institute Research Sub-Committee.** | |
| Name | Signature |
| Designation | Date |