



UOB ETec 2016 - 2017

UOB Emerging Technology Competition

Stage 1: Idea Submission Form (1000 words)

Complete this report and email it to itinnovation@contacts.bham.ac.uk by the end of Friday 9th Dec 2016.

1. Main contact details:

Name	Miguel P. Xochicale
Student ID:	1386479
School:	School of Engineering
Department:	Electronic, Electrical and Systems Engineering
Course/Degree:	PhD in Human-Robot Interaction
Study Year	Third year
Email:	MAP479@bham.ac.uk
Are you looking for PSA Accreditation?: Yes/No	Yes
What is your role in the team?	Leader

2. For Team Entries Only:

Team Name: ROCE: Robot Carer for the Elderly

Team Members Details (enter details of your main contact in section 1. Maximum 3 people per team):

	Team Member	Team Member
Name		
Student ID:		
School:		
Department:		
Course/Degree:		
Study Year		
Email:		
Are you looking for PSA Accreditation?: Yes/No		
What is your role in the team?		

3. Which emerging technology you are going to use? Please tick the relevant area.

Mobile App Design and Development	
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Drones	
3D Printing	
Internet of Things	
Augmented Reality, Immersive Technologies (Oculus Rift...)	
Gesture Controlled Technologies (Kinect, LeapMotion...)	
Cyber Security	
Artificial Intelligence, Robots...	a Humanoid Robot
Any other emerging technology of your choice	Please state:

4. Brief description of your idea:

According to The World Health Organization (WHO) 125 million people worldwide were aged 80 years or older in 2015 and it is predicted that 350 million of older people will live in low- and middle-income countries by 2050. The WHO pointed out that some challenges in Healthy Ageing arena are the improvement of methodologies for measurement, monitoring and understanding of physical activity. Elderly care using Robots has been mainly developed and used in Japan. For instance, (a) Ri-Man robot can see, hear and assess a person's health; (b) Paro therapy bot helps people with dementia to decrease stress or feelings of loneliness; and (c) Palro robot can be used in dancing activities. Similarly, Humanoid Robots (HR) such as Pepper and NAO have been used to understand human emotions. Recently, NAO has been also used to perform arm rehabilitation therapy for children and to teach diabetic children about various aspects of their condition. For this competition, I am proposing the use of NAO to create methodologies for measurement, monitoring and understanding the physical activity of the elderly. Additionally, I am planning to present preliminary outcomes of using NAO as an instructor for the elderly whom will wear sensors to analyse the quality of movement.

5. Why is your idea innovative and in which area that your idea will make an impact?

On one hand, I am creating methodologies for the measurement, monitoring and understanding the physical activity of the elderly using a NAO and inertial sensors. On the other hand, capital human can be create to tackle technical problems related to sensors, software development . All in all, I want to make an impact with regard to the creation of better conditions for a healthier ageing.