After Six Months Suspension Abstracts Published

Glocal Spring School 2019 in Tokyo Tech
Collection of Final Presentation Abstract

Research Title: Smart Tech Assistant (for people who cannot communicated)

Group Name: Beauties and The Beast

Group Member List: [redacted]

Abstract: People with full paralysis came across with the problem of not being able to communicate basic biological or emotional needs to the outside world, despite of the fact that they can be fully conscientiousness, this situation can generate stress, sadness and loneliness in the people who is suffering the paralysis state. We design a system to help them overcome this issue by using physiological signals like EEG, Heart Beat, Blood pressure and Body Temperature to sense basic biological and emotional states from the patient that can be inform to family, health providers and care givers about the status of the patient that cannot communicate by themselves using Wireless communication and mobile devices. We expect to enhance the communication process of health care providers and patient with expression inability, creating a bridge between patients and the world, improving the quality of life for target users.

Research Title: Hand & Mouth Communication System

Group Name: <J-C-C>

Group Member List: [redacted]

Abstract: Nowadays, Making the barrier-free society is one of the most talked about topic. And turning our eyes to the deaf people, we find that there are 70 millions deaf persons in the world. However, just 80% of the whole population don't have any education related to deaf. So we designed an communication system which named Hand &Mouth. It's consist of the camera (catching the speakers' hand move), speaker, Mic, and Horogram projector(showing the sign language to the listeners). Thus Hand &Mouth can help disability people to communication with non-disability people by converts spoken language to sign language and voice versa. We aim to improve the equality of human rights for person who are with disabilities, and support the communication service for disability families.

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Research title: Multi-Functional Robot for Old People.

Group Name: 4D

Group Member List: [redacted]

Abstract: Nowadays, the number of old people increases continuously in the world. The people in this ageing level suffers from several physical problems in existence such as deterioration of visibility, ineffective recognition and so on. This work represents a multi-functional robot that can help old people doing their activity. The idea is the integration of robot, sensing equipment, data processing module and monitoring system. The robot can accompany user adaptively. I can provide the information to user efficiently such as informatics data, security information and etc. Moreover, the robot has the ability to support the activity of the user to be convenient. Therefore, it can be summarized that the robot will play a key role to relieve the aging situation.

Research title: Our solution for "Hikikomori" problem in Japan

Group Name: Be Masters

Group Member List: [redacted]

Abstract: In recent years, a phenomenon called "Hikikomori" – withdrawal from society – has attached a great deal of attention. The huge number of Hikikomori are reported mainly but not only in Japan. Our devices are aiming to solve this problem of Hikikomori by offering the virtual experience of communication with others. Three mains devices will compose of virtual reality – to practice eyes contact at home, glasses – a tracking user's eye contact performance in communication and gloves – device that could help user to know how well they behaved during their conversation. The contribution of our virtual experience devices will contribute to the ones who want to improve social abilities, who want to go to the job interview and who want to gain essential skills.

Research title: Aimon

Group Name: Glocal Voice

Group Member List: [redacted]

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Abstract: Aimon is developed as a healthcare intelligent system including AI and big data analysis techniques, aiming to solve the aging problems in both physical level and mental level. The world's aging population is expected to grow significantly in the next decades, and it aggravates the lack of healthcare workers. Aimon can manage aging people's daily activities and give their individualized suggestion based on its AI technique and three basic datasets: movement, emotional API and personal interests. In addition, aimon is applied for both home and mobile devices to fit for indoor and outdoor situations. Our target is to let aimon improve the life quality of the elderly population and make up the global shortfall of healthcare workers in the future by its unique techniques

Research title: A Smart Soft Filter

Group Name: COOL

Group Member List: [redacted]

Abstract: Too much information on the Internet can make learning process slower due to the useless information. It also decrease out ability to make decision. We propose a tool called "smart soft filter" to categorize information and make it simpler based on user's keyword. When user searches one keyword by a searching engine equipped with this filter, the filter will sort different results into different categories based on big data. It is also able to eliminate the junk information such as advertisement. By this filter, user could rapidly find the information he/she needs from those categories, which significantly contributes to saving time on picking up valuable information and assists to make decisions.

Research title: Hybrid Device for Carbon Emission Reduction (HDCER)

Group Name: Fantastic 4

Group Member List: [redacted]

Abstract: Global warming and climate change is a well-known phenomenon. Global warming is affecting the human society at large scale. Main types of greenhouse gases (GHGs) that contribute to global warming are carbon dioxide (CO2), nitrous oxide (N2O), hydrofluorocarbons (HFCs) and sulfur hexafluoride (SF6). Among the GHGs mentioned, the emission of CO2 has the greatest impact on global warming due to its higher content in the atmosphere than the other GHGs. One of the major contributions to CO2 emission comes from transport vehicles. To mitigate the CO2 emission from cars, our group

proposes to develop a device called hybrid device for carbon emission reduction (HDCER) which is connected to the car's exhaust pipe, and filters the harmful gases emitted by the car engine after its fuel combustion. HDCER is a bioreactor which converts CO2 to ethanol with the help of bacteria. The bacteria can assimilate CO2 by using electricity as a sole energy source. HDCER is installed to the cars, and then after the device is saturated by byproduct, HDCER is returned to biofuel station for fuel extraction in exchange for a new HDCER. This cycle creates a sustainable and eco-friendly way to reduce CO2 and produce fuel. We expect that installing HDCER to all the hybrid cars will help alleviate the CO2 emission from cars and at the same time reduce global warming.