New Convergence Engineering Approach utilizing Automata and Arduino Technology

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[ABSTRACT]

In this paper, we make a new converged art of work named wooden African elephants using automata and Arduino technologies. An automaton generally refers to a moving, mechanical device, usually constructed to look like a human or animal figure. Also, Arduino board aims to provide a platform for innovative projects in smart IoT (Internet of Things) devices, wearable technology, high-tech automation, robotics, and much more. We have confidence that our convergence trial can dramatically lead the development of arts and information and communication technologies (ICT) simultaneously.

[KEYWORDS]   Automata Arduino

1. 서 론

Recently, convergence engineering is emerged technology to make a whole new conceptual methodology more than we previously developed the distinct technology. We primarily focus on this convergence engineering. Convergence is the creation of a new technology by merging distinct technologies, industries, and/or devices into a unified whole. In this paper, we attempt the new convergence using automata and information and communication technologies. The word automata (the plural of automaton) derives from the Greek word ατόματα, which means "acting of one's own will". An automaton generally refers to a moving, mechanical device, usually constructed to look like a human or animal figure [1]-[3]. Automatons are built to give the illusion of acting as if by their own power, despite comprising only of mechanical systems. This paper describes the mechanism of endangered animal automata. African elephant automata consist of multiple mechanical principles such as gears, pulleys, levers, cranks and linkages. In addition, we utilize the Arduino, open-source electronic prototyping platform enabling users to create interactive electronic objects [4]-[9], in order for attempting the new convergence engineering approaching and for making African elephant based on automata and Arduino technology.

2. 본 론

African elephants have been designated endangered species 20 years later and will be shorter if they are not interested in continuing. It is because of elephant hunting to get an elephant ivory. An elephant who is endangered because of a person presents a flower to a person using elephant nose to ask a person for help. In order to make a wooden

African elephant using automata and Arduino technology, we make a blue print as shown in Fig.1. According to the blue print, we make a wooden african elephant as shown in Fig.2.

Fig 1. Blueprint of african elephant

Fig 2. African elephant utilizing the automata making skill

African elephant automata consist of multiple mechanical principles such as gears, pulleys, levers, cranks and linkages. Our well-designed multiple mechanical principles are activated by Arduino board and use electric power to drive moving parts of automata elephant mechanically. Using Arduino technology, this elephant can be moved forward and backward automatically according to the pre-defined Arduino control software.

Fig 3. Arduino Uno and Arduino Zero [4]

In Fig. 3. Arduino Uno is a microcontroller board based on the ATmega328P. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the micro-controller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. Also, Arduino Zero is a simple and powerful 32-bit extension of the platform established by the UNO. This board aims to provide a platform for innovative projects in smart IoT(Internet of Things) devices, wearable technology, high-tech automation, robotics, and much more [4]. We utilize Arduino and its additional development kit such as IDE (Integrated Development Environment) to make the work of art named african elephant. Using automata and IT technologies such as arduino and programing to inspire people's minds for protecting endangered animals, we present a work of art as shown in Fig. 4.

3. 결 론

In this paper, we make a new converged art of work named wooden African elephants utilized by automata and Arduino technologies. An automaton generally refers to a moving, mechanical device, usually constructed to look like a human or animal figure. Also, Arduino board aims to provide a platform for innovative projects in smart IoT devices, wearable technology, high-tech automation, robotics, and much more.

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