Interview with Marius Ghercioiu about Art in the Internet of Things

Doru Ursutiu for iJOE

Ursutiu: Thanks for agreeing to this interview with i-JOE Marius, would you please introduce yourself to our readers and community.

Ghercioiu: My name is Marius Ghercioiu, and I am a virtual measurements engineer and entrepreneur. My company Cores Electronic LLC (www.tag4m.com) offers a product line named Tag4M that converts sensor data to web pages using cloud instruments. A sensor becomes a Cloud Instrument when it is connected to a WiFi tag. The tag digitizes the data to send it on to Access Points, where the data is routed to the Internet and a Server IP. Here a customized Database is collecting the data for feed into applications like metering, charting, control, display, analysis, modeling, data mining, etc. with display on Web Page Instruments. Tag4M covers the WiFi tag and the web page instrument.

I had the opportunity this year to work with a talented illustrator named Pablo Lara Henriquez of Santiago de Chile on a very interesting project named 'Art in the Internet of Things'.

Ursutiu: What is the Internet of Things?

Ghercioiu: In computing, the term Internet of Things (also known as the Internet of Objects) refers to the networked interconnection of everyday objects. The Internet of objects should encode 50 to 100 trillion objects and follow the movement of those objects. Every human being is surrounded by 1,000 to 5,000 objects. As we move through life and interconnect with these objects we generate data, lots of data which tells stories about our lives. I believe the art we create needs to capture this. We want our art to translate data into warm, human images reflect-

ing our interaction with the world around us. This Art cannot be static. It has to be dynamic in order to be able to continuously tell the developing story of our relationship with numbers. It is a new type of art made possible by the amazing space named Internet of Things.

**Ursutiu: Can you name any other artistic efforts that cover this space?**

Ghercioiu: Yes, of course. I can name three similar efforts:

Processing is a program based on Java. It creates drawings with lines of code. It is defined at Processing.org as: "…a simple programming environment that was created to make it easier to develop visually oriented applications with an emphasis on animation and providing users with instant feedback through interaction."

Arduino is "…an open-source electronics prototyping platform based on flexible, easy-to-use hardware and software.

Aaron Koblin has done some very interesting work in Data Visualization and Art.

All of these methods require some level of programming abilities that most of the artists do not have. This inspired me to look at the Internet of Things to figure out a simple way to connect the artist to the Internet. I had this vision of a digital frame that abstracts the programming task and lets the artist stay inside an environment of creation without boundaries and without fear of the unknown (like coding). We brainstormed and came up with an art avatar which is a digital frame that illustrator artists can use in order to create art connected to live data.
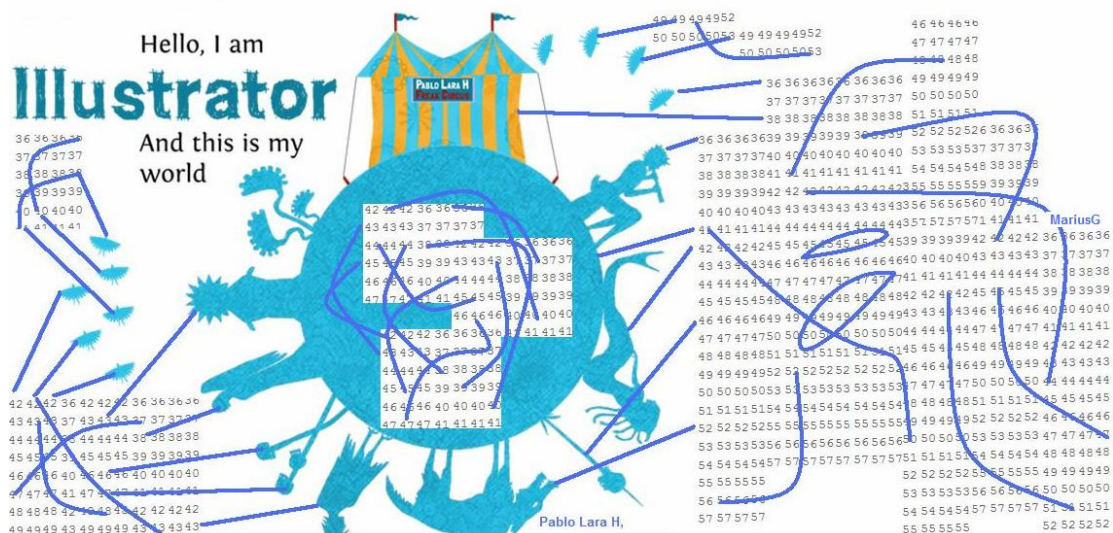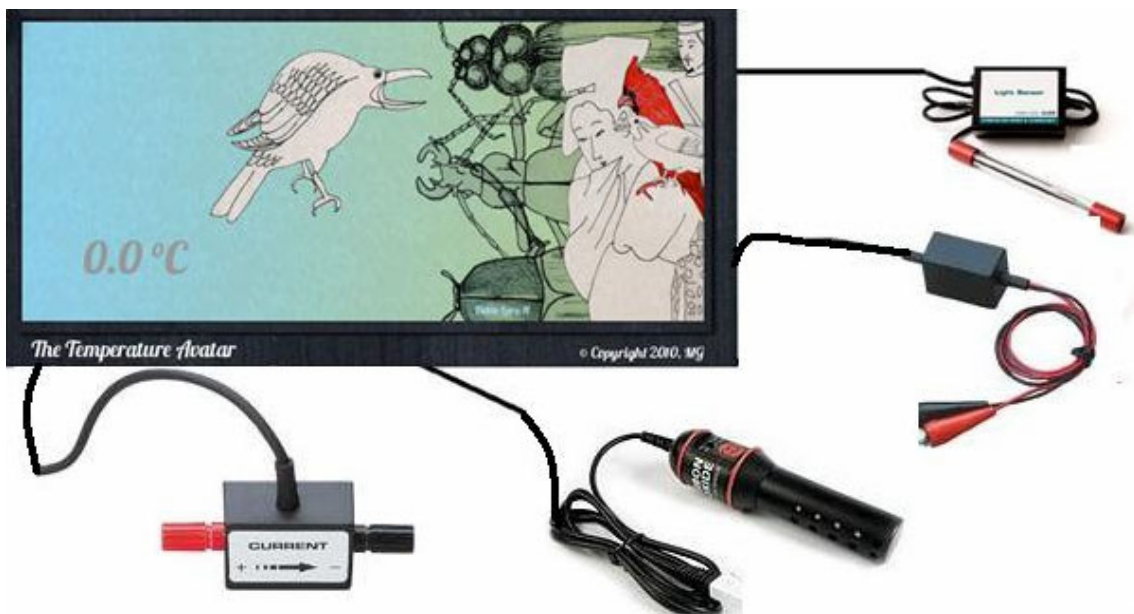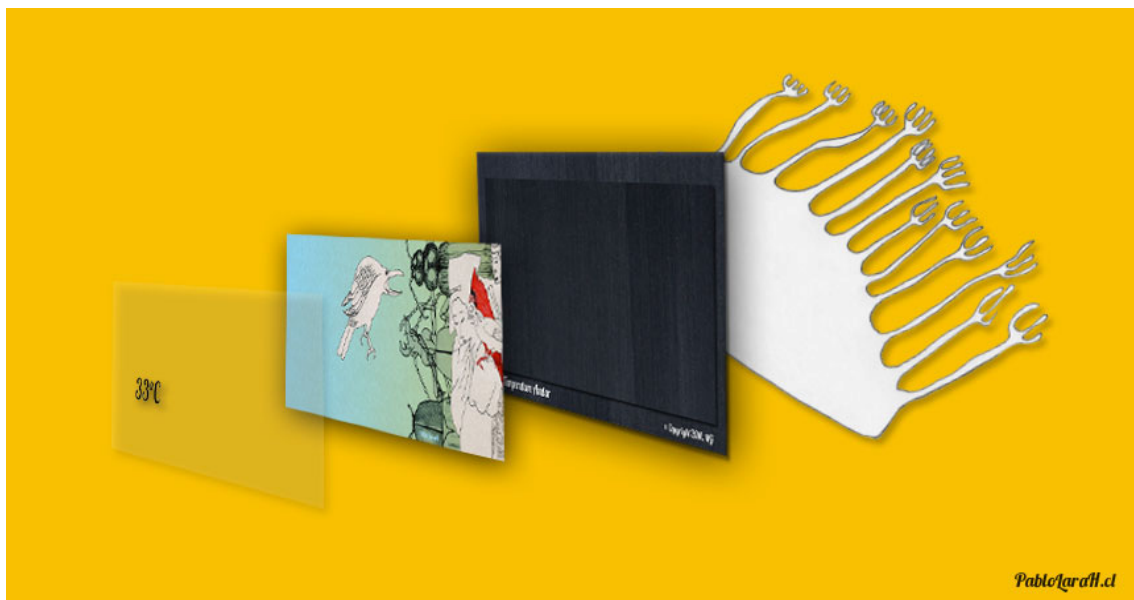
Ursutiu: What is the Art Avatar exactly?

Ghercioiu: First we have a digital frame that allows illustrators to host as many "paintings" they want and need in order to tell the story of a live developing entity. The frame is virtually connected to a live entity in the Internet of Things space, senses it in real time, gets digitized values representing its live variations and chooses from the set of hosted illustrations the one that represents the current state according to the artist's story telling. The combination of this digital frame and its original illustrations defines an **art avatar** of the live entity as seen and expressed by the illustrator. Our art avatar is a Temperature Avatar that can be seen live at http://temperatureavatar.com/.

Ursutiu: How is the digital frame connected to a live entity?

Ghercioiu: For the artist, the Temperature Avatar frame is just a frame. Think those golden, silver, or wooden frames used to host and hang oil paintings on the wall. The Temperature Avatar digital frame is used to host the original illustrations and also to make sure real temperature data from monitored sensors is brought into this virtual place where the right illustration is chosen for display at the right time to tell a live story of an entity correlated to temperature.

To answer your question, the Temperature Avatar is a **Cloud Instrument** as described at http://www.tag4m.com/ Its hardware component is a temperature sensor connected to an analog input channel of a Tag4M WiFi tag. Voltage from the temperature sensor is digitized by the tag and fed to a WiFi Access Point for further routing into the Internet and a Server IP running the feed engine that sends data to a web page application which feeds data into the Temperature Avatar art web page.

Ursutiu: What is the Temperature Avatar Art page?

Ghercioiu: The art gives the avatar its distinct identity.

The art of an avatar is a set of original illustrations made by an artist to reflect his/her own interpretation of an entity's evolution in time driven by temperature variations brought in from sensors by the frame. The illustrations are made to continuously change elements like geometry, color, brightness, expression, etc, as to indicate variation of the monitored entity and by that tell its live story. The art's purpose is to tell us a story at an informational and emotional level that makes us experiment aesthetic emotions. The Temperature Avatar art has been created by Pablo Lara Hernandez.

Ursutiu: This is really amazing! art with a lot of technology underneath, tucked in the frame.

Ghercioiu: Yes, that is exactly right. Static images are beautiful and masters for centuries have perfected this "technology" to unbelievable levels of beauty. The avatar art is adding a new dimension to the art of illustrations and drawings with the concept of a moving illustration or live painting that tells a story about an entity's natural changes correlated to sensor readings. We are in the definition phase of the Art Avatar "technology". Imagine a combination of sensors located in different places, monitoring different entities and sending data to Cloud Art Applications. There is huge field open for innovation here. I am inviting painters and illustrators from all over the world to join this art movement and create their own avatars using this technology.

Ursutiu: Where can artists get information about Avatar Art? Can it be purchased?

Ghercioiu: Avatar Art has been introduced by Tag4M (http://www.tag4m.com/). The web site gives detailed information about the avatar. We are very interested in working with artists to create more avatars. The artist will create a set of original illustrations that reflect his/her own interpretation of an entity's evolution in time. We will help with the frame to complete the avatar, and post the work in the Tag4M gallery. We want to tell stories using illustrations that are connected to real life dynamic entities.

Ursutiu: How do you see this development in the near future?

Ghercioiu: I only have some intuition as to how future art "technologies" will look like, largely informed by many of the patterns that have enabled such tremendous growth and scale of Web 3.0 applications in the last year or so. Physical entities contain the "avatar chip" as part of their fabric and this "avatar chip" is talking to the existing WiFi infrastructure so that Cloud Instruments get their information and use it to determine their correlation with us humans and also with themselves. This technology will change the way we interact with things or physical entities, and our art will reflect this change.

Ursutiu: Thank you Marius for taking your time to make this interview possible!