Let's Purikura!!

Let's travel around the six famous sights of Japan with our robot!!

The Idea behind Our Robot

When we thought about the things Japanese that we would like to introduce to you, many things came to mind. There are manga, anime, ninja, geisha, festivals, castles, temples, and beautiful scenery.

Most tourists who come to Japan visit places of natural beauty or places of historical importance. But to really get to know Japan, you mustn't forget about our science and technology. Japan is also famous for its robots, space technology and game machines.

Our generation really likes playing at amusement centers. One of the most popular attractions is called **Purikura**. A **Purikura** is a photo-sticker booth, or the product of such a photo booth. The name is a short form of *purinto kurabu*, which derives from the English, *print club*. The first **Purikura** were sold in July 1995 and are very popular with young people today. This is why we chose the **Purikura** as the model for our robot.

So why don't you become a virtual tourist, and travel with us around the six famous sights of Japan with our robot?!

Introducing Our Robot

When you go on vacation, do you take souvenir photos? The Japanese love taking photos. That's why we made a robot to guide you around six famous sights of Japan and take souvenir pictures.

Our robot can do the following four actions:

1. Reception Robot

① Read barcodes
② Take photographs
③ Use Bluetooth
④ Display messages to our virtual tourists. It communicates with you and asks you to "Please push the switch" or tells you, "Your photo is ready".

Please see the photographs that show these functions.

Virtual tourists can take photos of their virtual tour of Japan with the help of this robot.

We designed the barcode based on an image of Yokohama, the city where we live. (Fig.1)

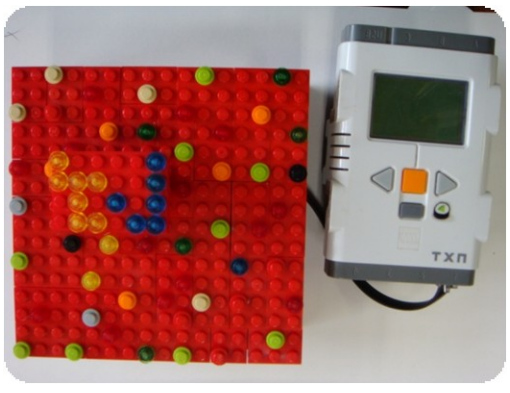
The stand for the camera was made based on an image of Mt. Fuji, the highest mountain in Japan. (Fig.2)

Fig 1

Fig 2

2. About the Switch users have to push when taking a photo

The work of this robot is first, to give a message to the tourists when the machine is ready to take a photo, and second, to send a message to the leader robot when everything is ready to take the photo. When someone pushes the button, the message, "" will be sent to the leader robot. There is enough time to decide how you want to pose for the photo. You don't have to rush. Take the photo you think is the best!



3. About the Robot That Winds the Background Sheets Up and Down.

The job of this robot is to put in place the correct background screens. It does this based on the information it reads from the bar codes. We made a total of six (6) screens. The robot lowers and raises each background screen using one servomotor per screen. To get enough power, we use two NXT units.

Comments

At first, we used only LEGO blocks. However, the paper rolls were too heavy and the gears could not work properly. This caused the robot to break down. Then we got the idea to put a wooden stick through the roll. Now it works just as we planned.

4. Decorations

We made this Ferris wheel as a decoration. It is modeled on the huge Ferris wheel in Yokohama. The Yokohama Ferris wheel is also the biggest clock in the world. Because our model is pretty heavy, it is very stable and can hold its balance very well.

The Motifs of the Background Sheets

We conducted a survey of about 50 exchange students and elementary school teachers to find out what they thought were the best sightseeing spots in Japan. The results are as follows:

① Yokohama, the city where we live
② Kinkakuji in Kyoto the famous Temple of the Golden Pavilion. It's the most famous temple in all Japan.
③ The World Heritage-listed Himeji Castle, one of the most famous castles in all Japan.
④ Kabuki, which is a traditional Japanese type of theater
⑤ Mt. Fuji, the highest mountain in Japan
⑥ And, as the representative of Japanese science and technology, a space satellite. Recent progress in space travel is very exciting. We want to take a holiday in space as soon as possible.

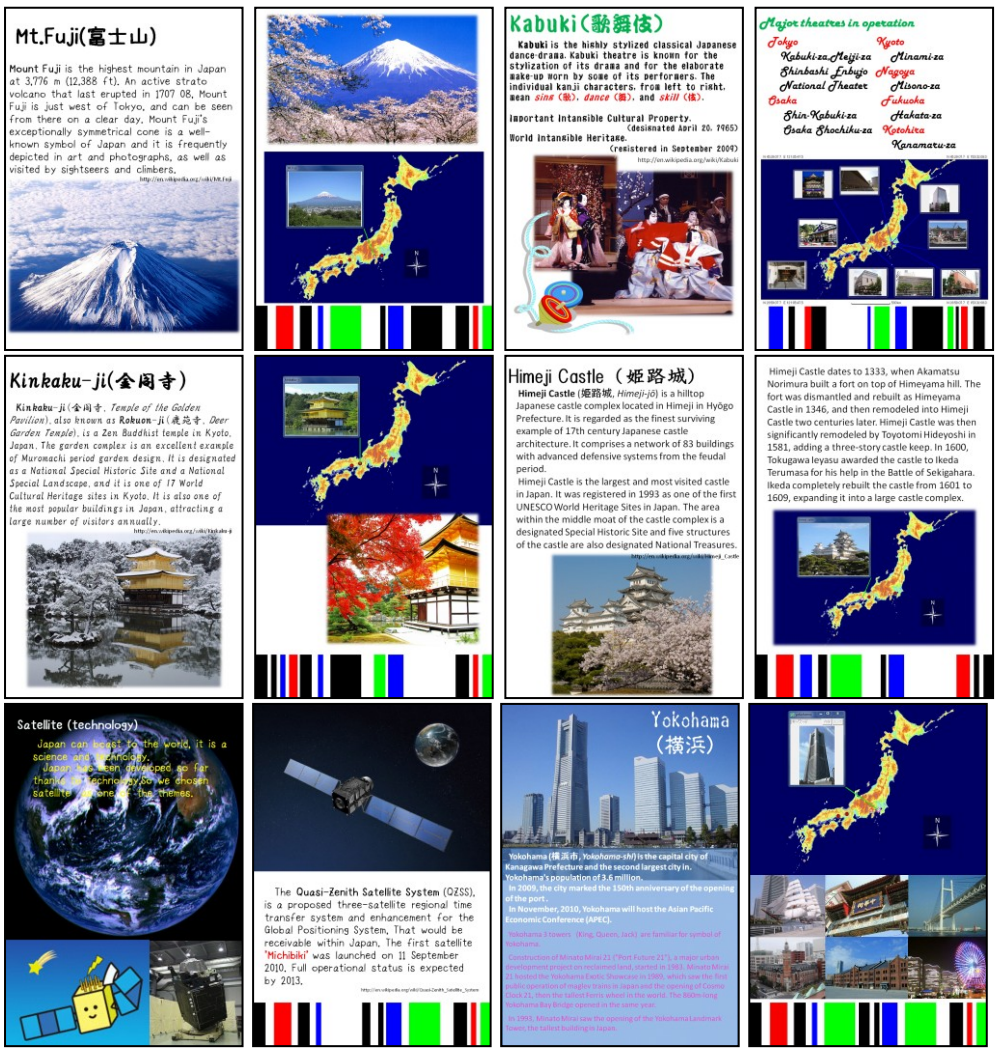
The Structure of the Barcode

The robot has a barcode reader inside. With two sensors it is possible to read 6 cards. One sensor reads the colors black and white. The other sensor reads three different colors, black, white and green. We studied the differences between, for example, red, blue, green and yellow.

Operating the Robot

① Pick one of the above cards and feed it into the reception robot so that it can read the barcode.
② The touch sensors in the receiver will respond and cause two optical sensors to read the barcode.
③ The information they read will be sent to the background robot, who scrolls the background sheets up and down so the appropriate sheet is in place for your photo.
④ When the background sheet is in place, the background robot sends a signal to the reception robot, which in turn relays the signal to the switch robot.
⑤ The switch robot tells our tourist that everything is ready, and signals the reception robot when the tourist pushes the switch.
⑥ The reception robot subsequently takes the photo, and then sends a message to the background robot to roll up the background screen.
⑦ The background robot rolls up the screen, and the program ends.

Card of the 6 sights



The Structure of the Program

User	YRJ Reception Robot	YRJ1&YRJ2 Background Robots	YRJ3 Switcher
Reads in the card	Reads the card with optical sensors		
		Lower the background prints, then sends a signal to the reception robot	
	Sends a signal that everything is ready to go		Sends a signal that everything is ready to go
Clicks the shutter	takes the photo		
		Raise the background prints	
	Sends a signal that the photo is ready		
Takes their printed photo			

The Distance between Background Sheets and Camera

The camera has been set at the right distance to the background so that only you and the background you chose appear in the photo. Please take a look on these pictures and see for yourself. Doesn't it look like you really took the photo in Japan? The atmosphere is exactly as if you really had been to Japan.

Yokohama Robot Jr.
Yasuaki Kawarada
Hikari Uchida
Shun Kashiwa

Morgue

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