**Minh**: Good morning ladies and gentlemen, we are students from Vietnam National University. First of all, we would like to send our warmest welcome to all of you. It is our pleasure for us to be here to present to you our invention which is named Smart garbage classification system. Don’t waste your time, we will talk about the main features of our invention now.

As we all know, pollution and climate change have been an issue toward the environment. One factor that causes this phenomenon is

One place that is suitable for crops to develop is the greenhouse. However, in greenhouse, we also need to control factors such as temperature, humidity, light intensity and soil moisture. In addition to that, one of the main features of this invention is the livestream camera. This camera enables users to track the crops growth to have a better quality crops. Next Mr Bao will explain how our system work.

**Bao**: Thank you Mr Khanh, and now, let me show you how our system work.

To detect temperature and humidity, we use DHT11 sensor consists of 2 electrodes with moisture holding between them. This is based on thermal temperature effect to measure humidity. Temperature can be measured by the thermistor which is a resistor that changes with temperature.

Light is also an important factor for plants growth and to control this factor, we use a light dependent resistor. The main component of this resistor is Cadmium Sulfide and it is designed to have a high resistance in low light and as light falls on the resistor, the changes can be measured by the microcontroller.

And to control the soil moisture problem, a low cost dielectric sensor is used to measure the permittivity of the surrounding medium.

To our important feature, livestreaming video from remote area is added and controlled by Raspberry Pi. The mejpg livestream technology is used to livestream and it can be accessed through a website.

In the next presentation, Mr Bao Khanh will operate the system as a demonstration.

**Minh**: Thank you Mr Bao, and next, I will operate our system.

In the greenhouse, we have multiple sensors such as temperature and humidity sensor, light sensor and soil moisture sensor and those are directed by the atmel microcontroller. This is the camera to livestream video and it is controlled by the Raspberry Pi. All of the parameters are presented to the graphic LCD. Video is livestreamed and put to the website.

Here is the fan to control the temperature in greenhouse. And this is the curtain to open and close the roof to control the light intensity. This is a pump to add water to the soil to adjust the moisture in the soil. Here is the camera that we livestream now.

**Bao**: Now, it is the end of our presentation, If you have any question, please don’t hesitate to ask us for explaination and thank you for listening.