
CGI
Smart City
Brainstorm
STEM@CGI AT HOME

What is a Smart City?

Smart City – a city or community that uses technology to improve quality of life. Being a "Smart City" can also improve the way that the government works for the people who live inside of it. In Smart Cities, data and technology can help answer questions like:

- "Where is the best place to build a building for energy efficiency?"
- "What are the best places for the city bus to stop?"
- "When should street lights turn on?"

What is a Smart City IoT device?

Internet of Things (IoT) - interconnected technologies that often use devices to exchange the collected data from one network to another. Most of our everyday devices are designed and used to collect data all the time. Examples of IoT devices include:

- your in-home thermostat from
- your smart phone, or a
- fitness device designed to track your heart rate throughout the day.

Smart City IoT devices are IoT devices that help cities for example:

- Air quality sensors
- Parking spot sensors
- Car sharing portals

Smart City IoT device – LEaRN air-quality sensor

What is a prototype?

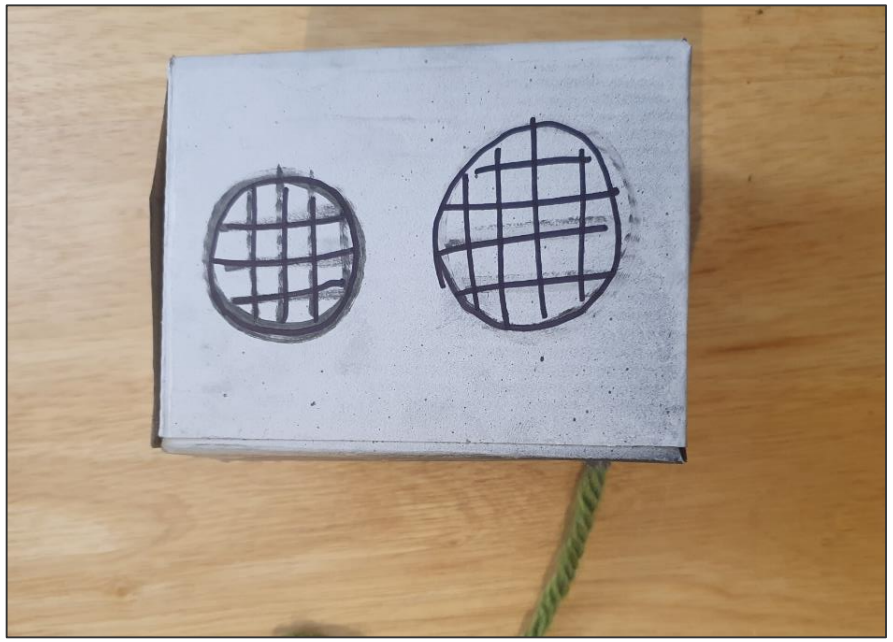
Prototype – a first model of something. Sometimes prototypes are working models and sometimes they are just to show the concept. Prototypes can be 3D or 2D. A few types of prototypes:

Working prototypes – these 3D prototypes demonstrate the technology

Non-working prototypes – they show what the device would look like but not demonstrate the technology – can be 2D or 3D

Paper prototype – this 2D prototype is a sketch or drawing of the item. This can be on paper or the computer

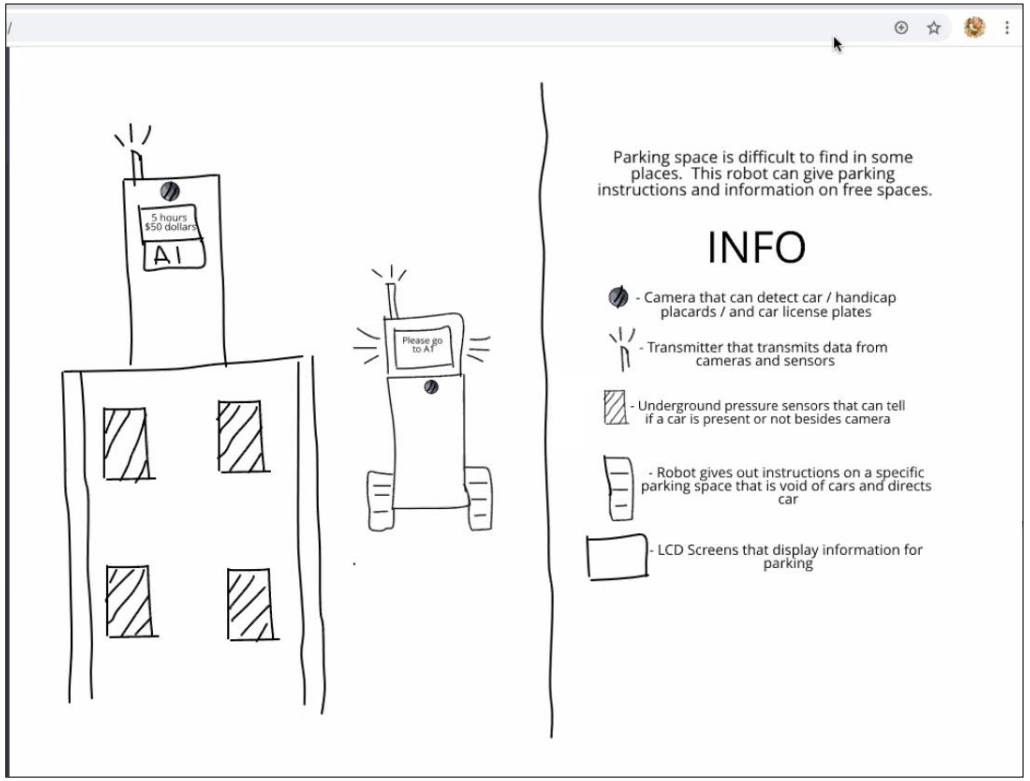
Example of a 3D non-working prototype

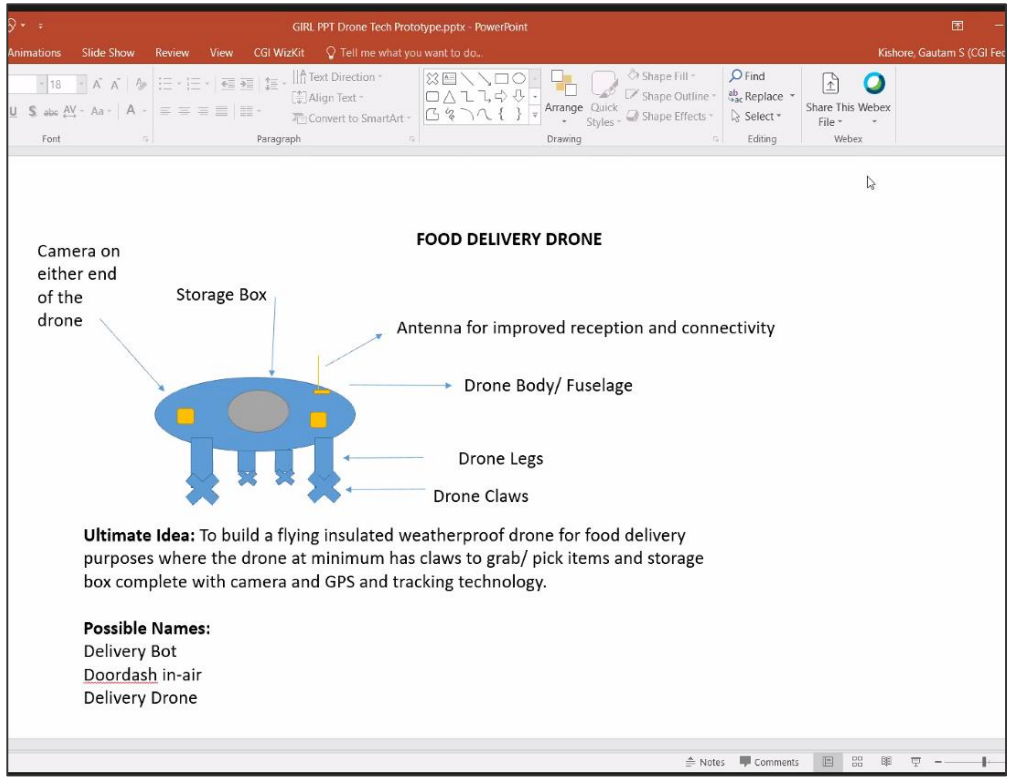


Non-Working Prototype

Working Device

Examples of paper prototypes





Smart Cities in Action!

Case study – LEaRN air quality sensors

LEaRN air-quality sensor example

1 Identify a problem in your community that you want to fix	1 I want to know what the air quality in many locations in the city is like
2 Identify an idea that can help address this problem	2 Low-cost air quality sensors that can be deployed around the city
3 Identify what is needed to implement the solution	3 Sensors, weather proof box, distribution plan, public data tracking
4 Identify the possible benefits or impact	4 Democratizing air quality information
5 Brainstorm a design of device	5 Raspberry Pi sensor encased in plastic box with mesh at the top

Create your Smart City brainstorm!

1. Identify a problem in your community that you want to fix

2. Identify a smart-city idea that can help address this problem

3. Identify what is needed to implement the solution

4. Identify the possible benefits or impact

5. Brainstorm a design of the device

Our commitment

We are passionate about helping students in our communities become the next-generation of information technology professionals.