Paru Dahal

IS 311

Lab2: System Identification - What can you do with a Bolt?

The Sphero Bolt is a spherical robot with a diameter of 4.5 cm and a weight of 88 grams. It's constructed from a durable polycarbonate shell that can withstand drops and bumps. The Sphero Bolt utilizes Bluetooth Low Energy (BLE) for communication with the Sphero EDU app or other compatible software. It has a built-in rechargeable battery that can provide up to an hour of playtime on a single charge.

The Bolt features several interesting components such as:

LED Matrix: A ring of multi-colored LEDs that can display various colors, patterns, and animations.

Accelerometer: Detects movement, including tilting, shaking, and rolling.

Gyroscope: Measures the Bolt's orientation and rotation.

Infrared Sensor: Detects nearby objects and obstacles.

Using the Sphero EDU app or coding software, I can program my Sphero Bolt to do all sorts of cool things. I can control my Bolt's direction and speed with directional arrows on the screen, a joystick, or by coding my own custom movement patterns. I can change the color, brightness, and animation of the LED matrix using color pickers, pre-programmed animations, or coding commands. Imagine a disco ball or a colorful light show, all controlled by me! Even though I don't have a speaker myself, I can still make some noise! With the "Speech" block in the app or some coding magic, I can play sounds through a connected device like a phone or tablet.

The Sphero Bolt has several built-in sensors that provide valuable data for programming such as,

Accelerometer Data: Accessed through the "Get accelerometer data" block, this data reflects the Bolt's tilt, shake, and roll movements. It can be used to trigger actions based on specific motions.

Gyroscope Data: Accessed through the "Get gyroscope data" block, this data indicates the Bolt's orientation and rotation. It can be useful for maintaining balance or programming specific turning maneuvers.

Infrared Sensor Data: Accessed through the "Get back LED detection" block, this data tells you if the Bolt detects an object behind it using the infrared sensor. This can be used to program obstacle avoidance behaviors.

Reference:

1) https://sphero.com/collections/coding-robots/products/sphero-bolt?gad_source=1&gclid=CjwKCAjw3NyxBhBmEiwAyofDYRkfGkRWUtlzyP0Lu JPGGn2EMZ0hJiTY_KfjUIIf3B6gAQ7dLKukwhoCkU0QAvD_BwE

2) https://sphero.com/pages/sphero-bolt-resources