

Programming Exercise: Voyager Gyro Controlled Scratch Christmas Tree

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Introduction

Here is a fun Holiday project that that will challenge your students' skills in both the physics of a gyroscope and Scratch computer programming. With reference to Figure 1, all of the sprites shown are either from the sprite library or are created from the *Paint new sprite* option in Scratch. The challenge is to program the tree's star to blink on and off by control of the x gyro, blink the blue light by control of the y gyro, and blink the big red light by control of the z gyro. All three lights should be on when the Scratch program starts running. Students should be able to demonstrate individual control of each light as well as rapid random blinking by shaking Voyager. A video of this demonstration accompanies this lesson.

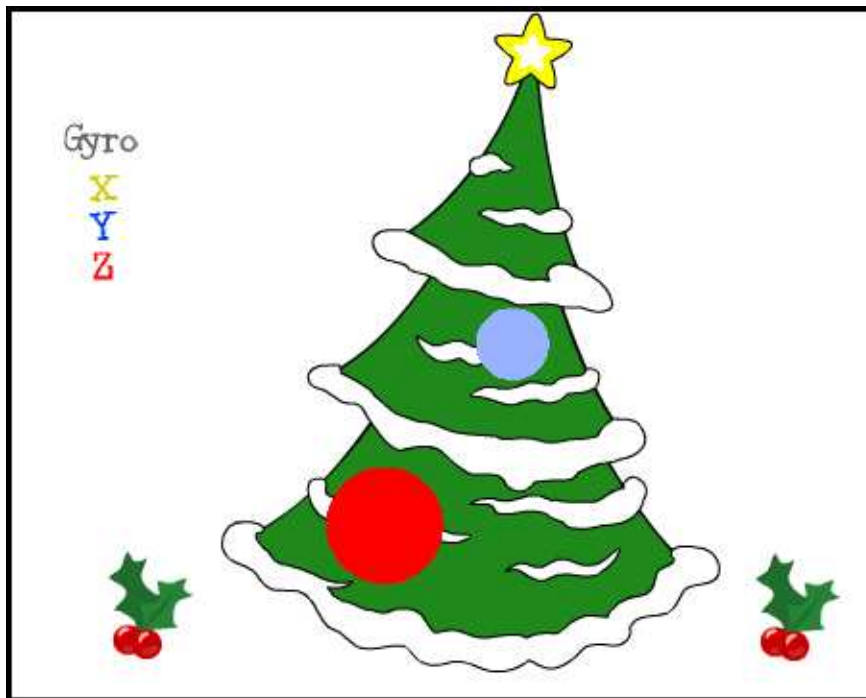


Figure 1

Figure 2 shows a snapshot of the author's Scratch program for Voyager's Z Gyro. The Scratch programs for the X and Y Gyro's are similar. Your students will likely come up with different Scratch programs to accomplish the desired tasks. More than likely, some of their program may be better than the author's!

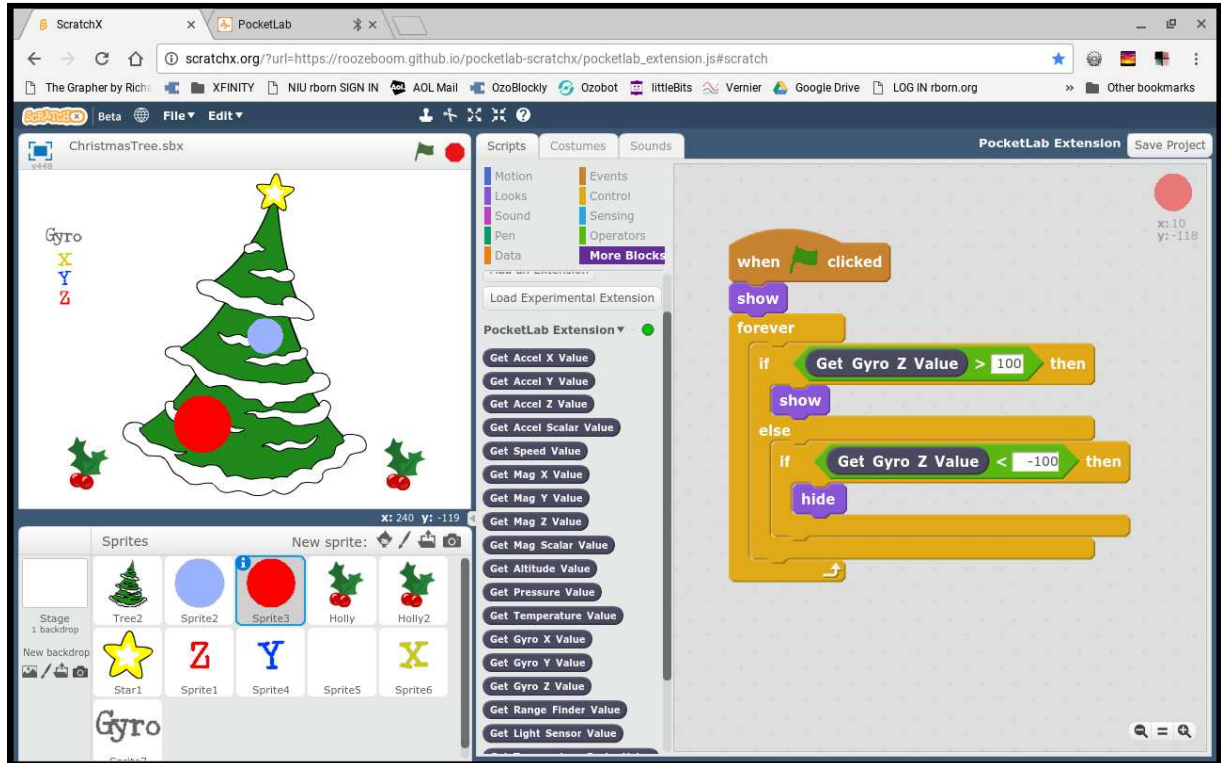


Figure 2