Introducing an all-new robotic playmate for your child from Twelve20 Enterprises, Johnny-5! This humanoid robot is the action figure for the 21st century, providing hours of entertainment. Johnny-5 interacts with his environment, with built-in distance and sound sensors triggering a variety of responses. He walks! He attacks! He avoids! With two distinct moods – happiness and anger – that affect how Johnny-5 responds to certain situations.

The three senses of Johnny-5: sight, hearing and touch!

Johnny-5 incorporates three of the key human senses: sight, hearing and touch. He “sees” using ultrasonic distance sensors built into his head, enabling him to determine the presence of objects in his path. He “hears” using a sound sensor built into his left hand, which measures sound levels to differentiate between loud and soft sounds. And he responds to human touch using a touch sensor built into his right hand, allowing children to “shake hands” with him and alter his mood.

Attacking and avoiding:

Johnny-5 recognises two defined distances – an “attack distance” and an “avoid distance”. The attack distance is 10 cm and the avoid distance is 20 cm. Johnny-5 will exhibit a certain behaviour if he detects an object within the attack distance, and a different behaviour if he detects an object at a distance somewhere between the attack and avoid thresholds. This is outlined in the following diagram:
The behaviours exhibited will differ depending on Johnny-5’s mood, and are outlined below.

“Happy” mood behaviour:

- In the absence of any sound or distance stimuli, Johnny-5’s default behaviour is to move forwards.

- When Johnny-5 hears a noise (in excess of 20 dB) he begins to do his “happy dance”. He waves his arms and moves from side to side for 5 seconds, and then reverts to default behaviour.

- If an object appears within the attack distance threshold, Johnny-5 moves backwards for 10 seconds. Because he is in a happy mood, he will actually be retreating rather than attacking.

- If an object appears within the avoid distance threshold, but still beyond the attack distance threshold, Johnny-5 will try to avoid the object by rotating. He rotates to face in a slightly different direction and then checks to see if there are now no objects within the avoid distance threshold. If there is no longer any obstacle within range Johnny-5 reverts to default behaviour, or else he repeats the rotating process and checks again.

“Angry” mood behaviour:

- In the absence of any sound or distance stimuli, Johnny-5’s default behaviour is to move forwards (same as with “happy” mood).

- When Johnny-5 hears a noise (in excess of 20 dB) he begins to do his “aggressive motions”. He pauses for 1.5 seconds after hearing the noise, begins angrily stamping his foot for 4.5 seconds, and then moves forward for 5 seconds while swinging his arms wildly. After this sequence of actions is complete, Johnny-5 reverts to default behaviour.

- If an object appears within the attack distance threshold, Johnny-5 moves forward until he is within 5 cm of the object (if he is not already) and begins swinging his arms to “attack” the object. After attacking for 9 seconds, he moves away until he is back outside the attack distance threshold.

- If an object appears within the avoid distance threshold, but still beyond the attack
distance threshold, Johnny-5 will try to avoid the object by rotating. He rotates to face in a slightly different direction and then checks to see if there are now no objects within the avoid distance threshold. If there is no longer any obstacle within range Johnny-5 reverts to default behaviour, or else he repeats the rotating process and checks again.

Switching between “happy” and “angry” moods:

When the touch sensor is pressed in, Johnny-5 will switch from whichever mood he is currently in to the other mood. It is not possible for any other stimuli to trigger a change of mood.

Stop everything!

Pressing the orange button on the front of the main brick causes Johnny-5 to stop moving, effectively putting him to “sleep” for a couple of seconds before reverting to normal behaviour.

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