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Sales Pitch

The ball balancing robot is a project with the goals of having a robot being able to balance and navigate while on top of a ball. The ball robot will have many practical uses to for everyday use in a common household or office environment. The robot will be able to balance a load and carry the load to a predestined location while navigating through the environment. Essentially the robots main function will be a glorified cocktail waitress. After the robot travels to the targeted locations it will be able to return to its origin to restock and prepare for its next journey. An, example of this function of the robot is for a party being held, where the robot can travel around and carry drinks or appetizers to guests at key location in the house/apartment. The main function of the will be to travel around the environment autonomously, but a secondary function of the robot will be to follow a targeted person or logo. On the ball robot there will be camera, which will help with navigation but also provide an object and logo recognition. This will allow the robot to pinpoint the proper object or logo and follow this object until stated otherwise. This function is called the companion mode. Similar to the cocktail waitress function in this mode the robot will be able to carry any personal belongings that an individual may be carrying and follow that individual.

The ball robot will be able to complete these action autonomously, essentially acting on its own. The robot will be placed on a spherical object, such as a basketball or soccer ball, and be able to navigate and balance. The benefits of this type of movement is that it is very dynamic

and can quickly change its course on a dime, to safely navigate around people or objects.

Another benefit this robot provides is that it is compatible with many balls, as long as there is enough friction between the ball and the wheels. This would effectively let the robot have a customizable height, allowing it to be more flexible and personalized. The robot will use a camera, a microprocessor, servo motors, and a gyroscope to accomplish all these tasks and functions. This makes the robot reliably, durable, and cost effective for consumer.

As the consumer of this potential product you may be wondering if this can be done. I can confirm that this robot can be done and there has been tests that prove this. First off, there are other version of similar robot that have already been created by other institutions. What makes ours special is that we will be commercializing our design, allowing the ball bot to navigate its way into homes across the world at an affordable price. Currently we are testing the speed of the processor using tilt sensors and the using the IMU to control servo motors. We have determined that the processor is fast enough using python and we calculated the motion the servos need to move to move the ball in all the major directions.