

ANTI FLOW GLASS HOLDER

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Abstract

Project was based on the development of a stabilizing cup holder that can compensate for angular changes. The use of stabilizing mechanisms is an increasingly common practice in our everyday life technology. Pouring drinks in the cup/glass and carrying it from one place to other without spilling of drink from cup is more challenging task. Sudden movements or jerks may cause spills. It should not to be used with liquids that are hot enough to scald and should not be used in moving vehicles. To overcome this issue a stabilizing cup holder is required. The cup holder consists of an gyro sensor that measures the angular changes in three axes. The system was constructed to compensate angular changes with servo motors controlled by Arduino. In the system the gyro sensor detects the angular changes and instructions sent to the Arduino.

1. INTRODUCTION

The Anti flow glass holder assembly primary function is to hold the cup in a convenient location for the customer. The glass holder is a device, to hold glass or cup. It will be free standing to hold cups securely on a desk or other flat surface. Rarely do we manage to carry coffee around without spilling it once. In fact, due to the very commonness of the phenomenon, we tend to dismiss questioning it beyond simply exclaiming We've all been there—rushing

to some early morning meeting about company synergy, barely able to keep our eyes open because honestly, who is awake at this godforsaken hour—and it happens: A coffee spill all over our ironic t-shirt. Admit it, you still wear ironic t-shirts. But the crux problem remains: Coffee spillage. New in depth, mathematical and physics-based research (the best kind of research) has done a deep dive into why we spill coffee all over ourselves. When you walk, even though you may only be going in one direction along the floor, there is still a

back and forth, or oscillatory, motion to your walk. Walking in and of itself is a complicated motion. The body rotates slightly along the head-to-foot axis, moves a bit up and down with each step, and arms tend to move about the joints (shoulder, elbow, wrist). When you walk with a cup full of fluid in your hand your walking motion changes a bit, for example, there is less rotation

about all of the arm joints. Some of the motion energy of walking gets transferred to the cup and to the fluid in the cup. The research also noted that most coffee spilling occurs within the first 7 to 10 steps (4 to 5 meters) of walking, and occurs earlier when people quickly reach their regular walking speed (their initial acceleration). The initial acceleration causes the initial displacement of liquid in the cup. The bigger the initial acceleration, the bigger the initial displacement of the fluid in the cup. Usually many people are prone to spill the cup of water, coffee or any other drinks while taking it from one place to another place. People do spill the cup and it indeed takes time and effort to clean that up. So, there is a need to make a holder that holds the cup in such a way that we can avoid any external force

applied on it which makes to spill the cup of water, coffee.

2. RELATED WORK

Design a cup holder which makes us easier to carry the cup from one place to another place, which is affordable and easy to use. As many people are prone to spill the cup of water, coffee, drinks while taking it from one place to another. People do spill the cup and it indeed takes time and effort to clean that up. So it's important to make a holder of glasses that will avoid any kind of shake by human hand that they're holding with it. However, there is no mechanism present of glass holders that will remain at stationary point irrespective of the handle position. Our aim is to create a glass holder that makes it easier to take without any drop from one place to another. Design a cup holder which makes us easier to carry the cup from one place to another

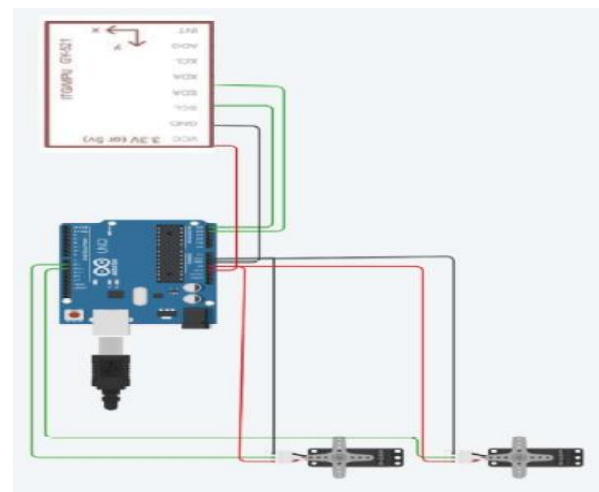
place, which is affordable and easy to use. As many people are prone to spill the cup of water, coffee, drinks while taking it from one place to another. People do spill the cup and it indeed takes time and effort to clean that up. So it's important to make a holder of glasses that will avoid any kind of shake by human hand that they're holding with it. However, there is no mechanism

present of glass holders that will remain at stationary point irrespective of the handle position. Our aim to create a glass holder that makes it easier to take without any drop from one place to another.

3. IMPLEMENTATION

Usually many people are prone to spill the cup of water, coffee or any other drinks while taking it from one place to another place. People do spill the cup and it indeed takes time and effort to clean that up. So, there is a need to make a holder that holds the cup in such a way that we can avoid any external force applied on it which makes to spill the cup of water, coffee. Our solution is to use a holder where it holds multiple glasses and by using servo motors. It maintains the balance of glass. Instead of using the principle of centrifugal force, we are going to use Arduino that operates the servo motor and gyroscope. The angular velocity and the orientation of an object is measured and maintained by gyro sensor which is connected to servomotor. Servo motor rotates in anti direction of the handle movement. Thus, net movement is zero by canceling out the force directions and makes the glasses to stay the same point irrespective of the orientation of the handle. This device is designed to evaluate

the retention of the liquid in the glass holder. To establish a design methodology to make design process simpler and less time consuming. The main aim of the project is to develop a stabilizing a cup holder but can compensate for angular changes.



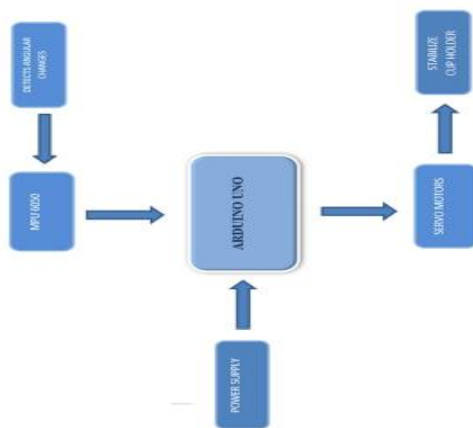
Conceptual Design

4. EXPERIMENTAL RESULTS

When a power supply is given to the circuit, when a cup is carried from one place to the other, there will be a movement in the holder. MPU detects the change in velocity, acceleration, direction, orientation then the data is processed and signal sent to the Arduino. The Arduino post-processes the data and then it controls the servo motors to move in such a direction, which stabilizes the cup.



Working Model Of Anti Flow Glass Holder



Block Diagram

5. CONCLUSION

The antiflow glass holder was successfully designed that stabilizes the cup. If someone attempts to carry a cup, the gyro sensor will detect the movements and angular changes according to the changes the cup gets stabilized.

6. REFERENCE

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