Electrical Engineering and Computer Science
EECS 373 - Design of Microprocessor-Based Systems

A – MAIZE – ING

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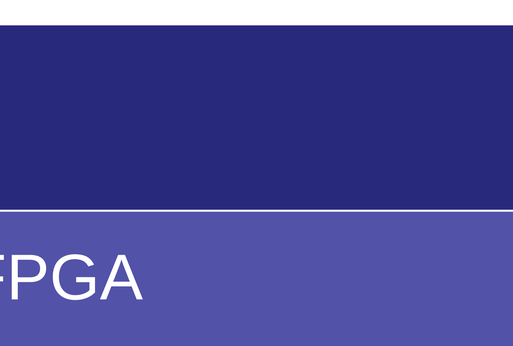
Introduction

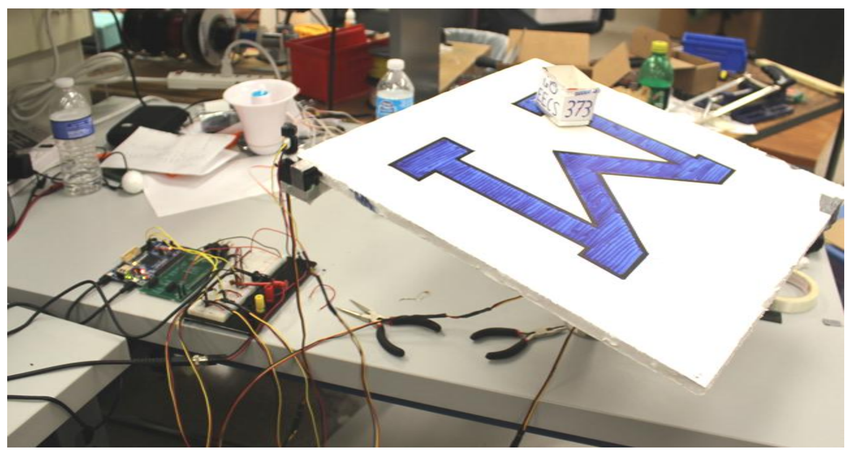
Marble maze games are enjoyed by many people and on many different platforms from smartphone applications to physical tilt tables. But what about a self balancing automated maze solver? Well, we present to you “A – MAIZE – ING”!

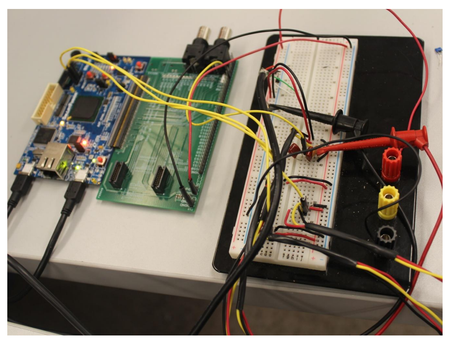
Project Specifics & Goals

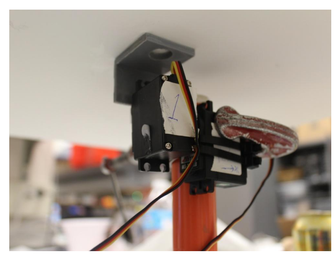
- Two servos are connected to produce tilt on two axes.
- A flat board is mounted horizontally to the two servos.
- A LIDAR is added to a corner of the board and pans 90º to detect an object’s location
- The system can tilt appropriately in order to move the object.
- The system can move the object to specified locations.
- The system can maneuver the object through a pre-defined maze.

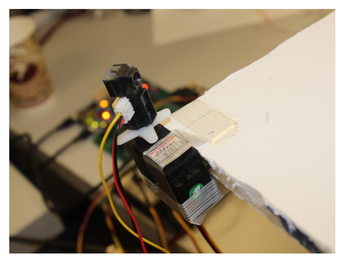
Project Implementation











Algorithms & Design

- Infrared signal received by ADC
- Signals are processed to determine object coordinates
- Feedback system tilts board to move object towards specified location

Equipment

- SHARP Distance Sensor
- HiTEC Servo
- Actel SmartFusion

Conclusion

Our system is a low cost feedback control system that is able to detect objects and move them to predefined locations. The system also prevents the object from falling of the edge. Further development would invest in higher quality equipment which would improve the feedback and control of the system.