

**Mark Dishnow
The Lazy Lock**



Figure 1: A close up of the front of the Lazy Lock in riding position



Figure 2: The Lazy Lock locked to a bike rack

Summary

Riding a bike is an efficient and safe way to get around throughout the day. In order to keep that bike safe it is necessary to have a lock to lock up the bike. Unfortunately for most people the lock is in the way while riding or time consuming to get it out of the way. This is where the Lazy Lock solves that problem. My goal for this project was to make a system that would keep the lock and cable in place while riding and keeping it easily accessible when it is needed.

I considered a few different concepts for this lock. They included both interior and exterior storage of the cable. There are some current products on the market to hold a lock, but they don't solve the problem of being quick enough, they still are too slow. My initial designs had the lock as two separate manufactured pieces that were stored on the outside of the bike with the cable on the inside of the bike frame. I then went to the idea for the lock to be a standard pad lock and to be attached to the frame with magnets or hooks. Eventually I decided on a standard padlock with a magnet attached to the side so that it will stick to the frame of the bike. The hooks were found to be unnecessary and would have taken more time to use. Also for the way to attach the loop of the cable I needed to find a solution. After exploring either hooks or magnets I found a magnet to be sufficient and the best solution for holding the cable as well.

My final design of the Lazy Lock includes an out of the frame housing for the cable to be stored in it. The housing is PVC piping that is stored below the top crossbar of the bike. On the ends of the cable are a lock on one side and a loop on the other. The lock is attached to the cable using a metal connector on its rounded top. The loop uses the same metal connector to connect the two ends of the loop. Attached to the padlock and the metal connector on the loop are round magnets. These hold them securely to the bike while riding. The cable is also attached to a retractor that gives some tension to pull the cable back into place. The entire piece is completely removable from the bike so that it could be transferred to another bike without leaving a mark on the first bike.

The final product of the Lazy Lock works very well. It fits beautifully under the main bar on the bike and looks good too. The pipe was painted to match the bike to make it more aesthetically pleasing. The magnets hold the lock and cable in place. I did a test by bouncing the bike up and down to check for stability and the lock and cable did shift some, but the worst case of the shifting was no where near any dangerous zones of the bike (tires, pedals). The lock and cable stayed within a few inches of the starting position under the extreme conditions. One minor thing that I would like to change in the future, if I can find it possible, is that the cable is not quite as long as I would have hoped. This is due to the restraint of the length of the casing restricted by the bike itself. The simplicity of using the Lazy Lock even took me by surprise when I first tried it. Once I got the lock undone, I felt as if I had to do more before I could ride, but it was ready to go. The project was very successful and cheap as well. The total cost of the project was under \$20. This was because a few things were donated, but without those donations the cost would only rise to about \$25-30 which is very reasonable for the job that it does.