

## Biomimetics

Recently, biomimetics is increasing in the world. Biomimetics is often used in animal's appearance, so we want to use animal's habit. We conducted an experiment with the model of fish. We made a device to examine the quantity of fish generating electricity. The device could generate electricity, but quantity of it was very small. Therefore, we want to find an efficient device.

In order to prove that how to use animal's behavior, some surveys and experiments are conducted.

In the course of survey, we interviewed breeding stuff in AQUAS and came up with way to generate electricity by power of fish. Actually, an experiment is used as follow: a pool, two fish model which made eight plastic bottle, a LED bulb, a motor, a propeller and a metronome. This experiment's procedure is conducted like this.

1. Consult the Internet for speed of fish.
2. Put water into a pool and make fish models swim the pool as it keeps a constant speed.
3. Put a propeller into the pool.
4. Judge whether a LED bulb go on or not

The results are as follows.

It almost succeeded in generating electricity by fish model when fish swim at a speed of 31.9 kilometers per hour. Also, we calculated quantity of power generation. Then, we found that it was 0.00125 watts. We changed 0.00125 watts into money, and then this value is 0.0009 yen. It was very small. If you want to cook rice in power of fish, you need it for device of 4110.

This experiment has both positives and negatives.

The positive is that you can do this experiment with things almost only by and. However, the negative has three points. First, it needs a lot of water to do this experiment. It is meaningless that setting up this device costs a lot of money than the amount of money which this device produces by the generation of electricity. Second, we don't know whether this experiment can success or not when we use fish in fact. Third, an ethical problem arouse. This handles fish's life, so people might criticize our idea. However, if these three negative points are solved, this device will become what contributes to society.

Through these research and experiment, we found this way to generate electricity by fish is almost impossible.

This time, we spent a lot of time completing this study, but the experiment ended in failure and then we found a lot of improvement plan. We worked on an assignment which doesn't get any answer. It was very difficult, but we were proud of what we could accomplish this study.

### *References*

#### Interview:

AQUAS, Asa zoo, Miyazimarin December, 2020