Although there are many fish hobbyists around the country that enjoy the serene look of a fish tank, maintenance of a fish tank is by no means trivial. Poor maintenance of fish tanks can degrade the appearance of them over time and at worst, could be fatal to the fish themselves. “Maintenance” here refers to keeping fish tank parameters such as nitrate concentration or temperature and keeping fish healthy. But fish tank maintenance is time consuming and requires commitment and constant attention. One important aspect of maintenance is the process of feeding. Besides the obvious consequences of underfeeding, overfeeding can also bring diseases and even death to the fish. Not only will the fish consume more than necessary but the remaining food content could pollute the water. Fish tank feeding is also more frequent than other aspects. Also, according to diet changes and the size of fish the amount of fish food to dispense would also vary. Given the precision and attention demanded by feeding, we propose a device to automate the process.

To collect information regarding the opinions about our proposed device we conducted a survey. Admittedly, the sample size became limited due to time constraints, but we deemed it large enough to develop an initial understanding. More people do not own a fish tank than people that do and most do not even consider a fish tank desirable. As for the reason, many people agree that the time-consuming task of maintenance is to blame, at least partly. Hence, it was decided to automate this process. To further predict the success of our product, we asked, “would you add a fish tank to your house if the maintenance was automated?”. Only a miniscule minority responded no, and half the responses were yes.

From the respondents that do own a fish tank, only a very small percentage knew the right amount while many underfed. More than half the respondents said they leave home sometimes or even very often, leaving them without a method to feed their fish. So, we believe that if the feeding was automated by a machine with an adjustable timer, the procedure could be made less tedious and more precise. Also, Half the respondents said they add or remove fish or change the diet of their fish every few months while the other half, not at all. Considering this census, we decided to automate the process of feeding.

As mentioned above we have deduced that many people find maintenance to be impractical due to their daily schedule and most are agreeable to having a fish tank if this wasn’t a factor. Hence, it was decided to automate this process. But since maintenance involves numerous aspects, we decided to mainly focus on a precise and flexible feeding system. We chose feeding since it is often erroneously done as made clear by our survey and we have detailed above the adverse effects that follow. Also feeding is a very frequent task, so people who are absent from their houses will find this task to be the most challenging. Also, many people underfeed their fish which could be related to rushed feeding. Many people also change fish or make diet changes regularly which requires changes in the quantity of how much and how frequently fish are fed. The timer would allow flexibility in the frequency of feeding to overcome the difficulties mentioned above. Users could simply enter the number of hours between feeding times without the hassle of having to change their habitual routines of feeding. This will also improve the quality of the fish tank and the health of the fish residing in it. It will also incline more people who like fish keeping but hate consistently feeding, to buy fish tanks to their house. We also believe existing fish tank feeders have unattractive designs, so we experimented with a more unconventional enclosure to differentiate ourselves from our competitors and to add more appeal to the design. We considered additional sensors to measure parameters such as temperature, but it could make the enclosure more bulky and awkward. The device will however feature failsafe mechanisms in case of a malfunction such as a compartment to separate fish food to be added from the container to prevent the entire container from being dispensed and an alarm feature to inform the user every time fish food is dispensed to remind the user of its proper operation if he or she is within its vicinity. This will make the product more faithful to the users.