## Individual Reflective Piece

The problem that our responsible innovation project is trying to solve is the post-harvest loss and market problems of agricultural products in Singida, Tanzania. However, our solutions and the process of proposing solutions have many shortcomings. This gave me a deeper thinking about how to be responsible when developing solutions to problems.

The first is to consider all the stakeholders. This may not only reach the level of the groups, but also need to reach everyone in each group, especially those with special needs. In our initial design, we considered creating a web page to help multiple countries in need. But after tutor reminded, we realized that this may not help everyone we hope to help. For example, there are some tribes in Africa who need help, but hey use their own languages that have no words. We have considered translating the website into different languages, but we are unable to provide the website in these languages. Although we did not adopt this plan in the end, I am still considering how to solve similar problems. Before proposing a plan, we should carefully consider each relevant person, taking into account their specific and individual needs. Regarding the language problem above, I think it might be a possible way to find volunteers offline to help them. In the future, I will pay more attention to the analysis and consideration of stakeholders, collect information more comprehensively, and try to consider everyone.

In addition, I am also aware of the importance of systems thinking. Many systems may not be independent, and their operation is based on the support of other systems as well as the local situation. Especially in countries and areas with weak infrastructure, the development of high-tech industries may not be as easy as we thought. For instance the website that we conceived at the beginning, in some countries, the network construction is not very perfect, there may be many people who cannot use the network, so they cannot get help from our website. The integrated model of sorghum storage and processing we proposed later also relies on the relatively convenient transportation industry in the Singida area. For a responsible solution, system thinking can help identify the constraints that may be involved in the plan, and ensure the smooth, stable, and long-term operation of the plan. It is impossible to succeed in implementing programs that lack the support of other systems. When solving problems in the future, I will fully consider the situation and the related systems, avoid unrealistic fantasies, and propose reasonable and long-term solutions, and try to solve the problem from the root.

The last point is problem refactoring. Problem refactoring helps us to fully understand the problem and solve the right problem, but this is sometimes ignored by us or even some governments. In our project, we try to solve the storage and processing of agricultural products. However, climate restrictions, behindhand farming methods and informal marketing are still the main reasons that restrict local farmers from increasing their income. Even the community granaries promoted by the government were underutilized because the problem of the informal marketing still existed. In the future work, I will try to be critical and ask questions, find the real cause of the problem, find the best solution, and solve the problem from the root cause as much as possible. Who, where, when, what, how and why can be good questions. On this basis, hypotheses can be tested and developed to reframe the problem, thus better understand the cause of the problem or of the missing problem in the comparison case.

In conclusion, through the study and workshop project this semester, I have a deeper understanding and thinking about responsible solutions and how to put forward them. In my future work, I will try to use these knowledge and skills to come up with responsible solutions and become a responsible software engineer.