

The world's population is expected to reach 10 billion by 2050. The general consensus is that global agricultural production has to be increased by about 60-70 per cent from the current levels to meet the increased food demand in 2050. However, the world significant challenges which hinder the ability to meet these demands, such as Climate change creating extreme and unpredictable conditions that is expected to decrease yield by 10% by 2050. Currently rapid urbanization is putting pressure on all systems in global cities, including food system. This whilst the demand for premium food quality is increasing as well as competition for natural resources. The combination of these factors pushes us towards a Malthusian catastrophe, with the current methods of farming.

With the possibility to increase agricultural land being limited, the only sound solution is to increase farmers ability to produce higher quantities and higher qualities of food, whilst using fewer natural resources. This is where our solution "Agri-Track" comes in. One of the most effective ways to improve farming methods is through technology. Using automation and analytics one can pinpoint and change processes to gain efficiency. This has the potential to greatly enhance food quantity and quality, and at scale can mitigate the risk of a Malthusian catastrophe. However, we do note that systems that allow for the monitoring and controlling of indoor farm environments do exist, but they don't match the specific requirements that are needed by our specific end users (SLE Farming). These systems are often expensive and do not work in areas of limited signal or low bandwidth as well as do not function well during frequent power shortages.

We have managed to develop a pilot system that fits the criteria. Data is collected from sensors within the user's farm environment and stored in a cloud environment. Which allows for real time access to data as well as persistent data during power failures and limited signal. The data is then displayed on a web-app in which the user can access it from a laptop, tablet or smartphone. Then user can then view as well as manage variables within their farm environment from wherever they are.