

# RSH 381 Assignment 1

*by* Hrudhay Reddy

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# ASSIGNMENT 1

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## INTERNET OF THINGS

Research topic : Agriculture in IoT

**Problem statement** : Internet usage is not only in which humans access devices, such as mobile phones or personal computers . Another way of accessing objects of everyday life such as light bulbs , refrigerators , watches, etc , are that they are all connected to the Internet. Internet of Things is not only where communication between humans and machines take place, but also where communication between machines take place as objects in everyday life interact with one another . The Internet of things system is also known as IoT integrated sensors, computer devices, and algorithms with the physical objects known as the Things. These Things can collect and transfer data over connected systems without any human involvement, therefore offering data processing abilities . IoT in real life applications include home automation tasks, health care and medication , smart cities , smart environments , etc (Lampropoulos, et al., 2019) (Kumar, et al., 2019) .

Agriculture is one of the most important aspects in not just in IoT , but around the world . It is the largest source of food in the world , according to the United Nations the world population will increase by 2 billion people by 2050. Which means more global demand for food and water will continue to increase (Friha, et al., 2021) . IoT has come up with innovative technologies in agriculture that has made it easier for farmers to take advantage of such as using wireless cameras and sensors to monitor the farm and gather data in the form of videos and pictures , usage of water is refined as efficient water delivery techniques such as dripping or subsurface irrigation is implemented in order to reduce evaporation and increase soil moisture content by only supplying water when needed by sensors and automation , concentrating on accurate sowing by utilizing remote-controlled tractors to minimize seed wastage , etc . Despite all that , not every farmer can afford to buy IoT technology as it could be expensive to them . Some farmers who can afford to get their hands on IoT technology need to also consider the power consumption of some IoT devices. Power consumption with limited battery life is a disadvantage for many IoT wireless systems and needs to be looked at. Whilst the farmers are purchasing IoT devices , considering the power consumption factor , they also need to factor in the security aspect of the IoT devices. Some IoT devices security could be vastly fragile as it could lead to major security threats such as data being stolen , manipulated , privacy breaches of data , etc (Sinha & Dhanalakshmi , 2022) (Villa-Henriksen, et al., 2020) .

**Objectives** :

1. To make IoT devices more affordable for farmers .
2. To conserve power consumption of IoT devices/systems .
3. To improve security methods to guarantee more safety of the IoT devices.

**Research Questions** :

1. What are the methods needed to make IoT devices more affordable for farmers ?
2. How can farmers conserve power consumption of IoT devices whilst still wanting to maximize the expected output of the product ?
3. What are the most appropriate methods to improve security of IoT devices?

## Bibliography

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