



HACETTEPE UNIVERSITY
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
ELE 401-402 Graduation Project

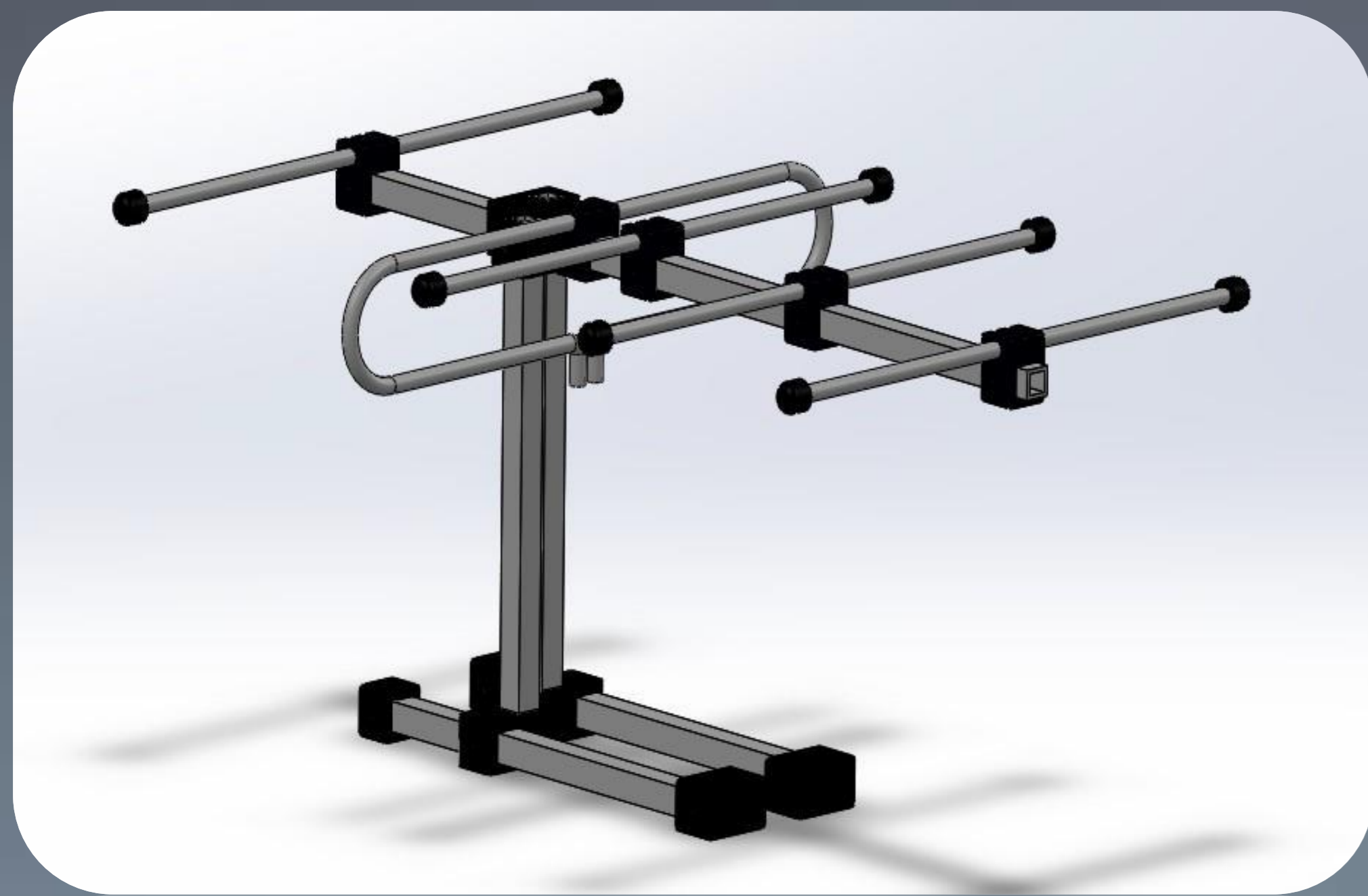
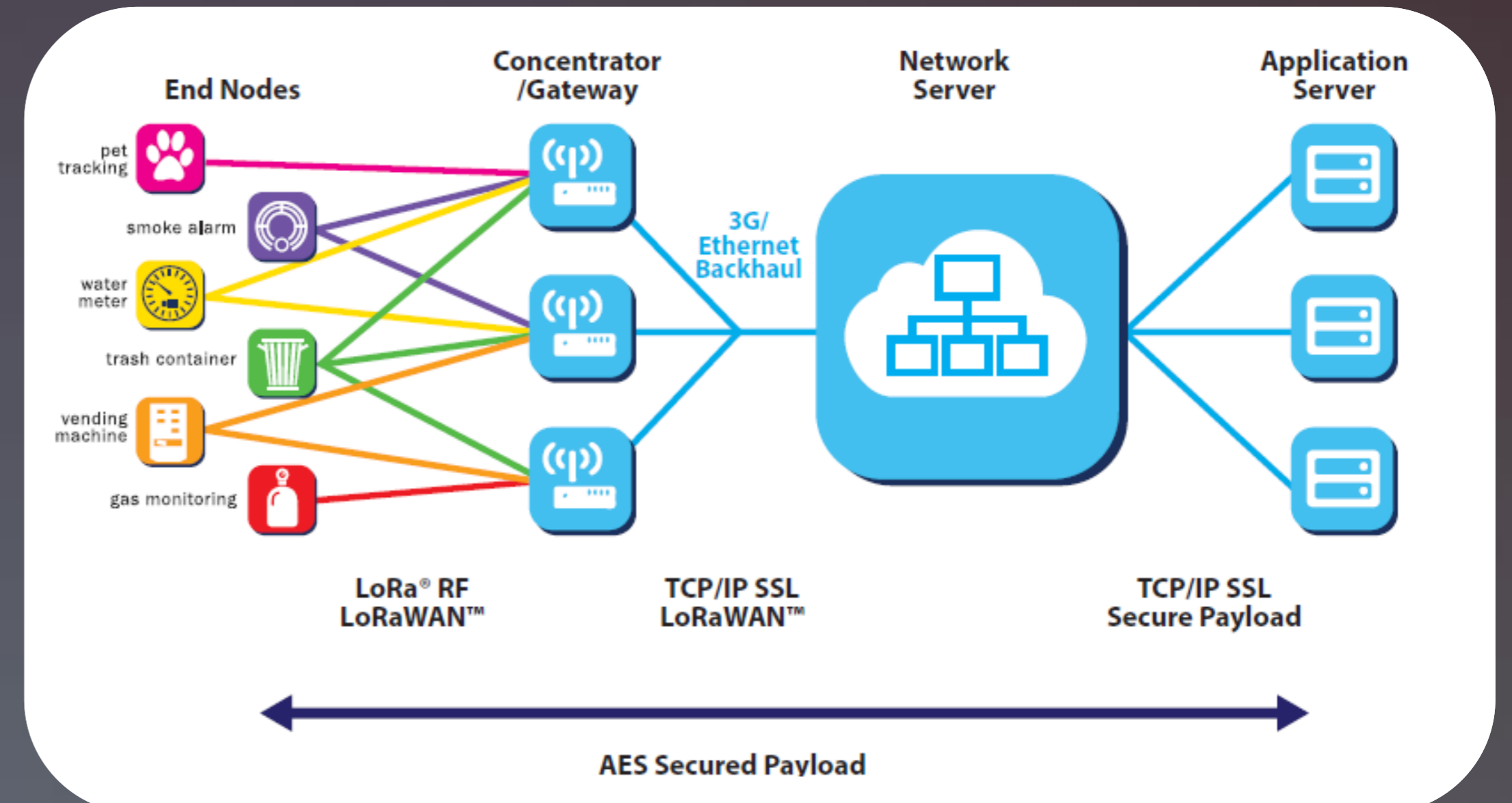


Development of Long Range Remote Control Device
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Introduction

RF remote control is ubiquitous in modern life. Some remote control applications in the automation field of agriculture, industry and home require working distances of hundreds of meters or in some cases maximum ranges up to a few km. The project involves design and development of a remote control device with a range exceeding 1 km.

Aim in this project is to set a long range communication system and make an application of it, using IoT. Applications can be made with this infrastructure is excessively many.



Methodology

LoRa Technology is used for the implementation of this project. The term "LoRa" (Long Range) refers to the extremely long distance that can be achieved with very little power using a special physical layer (PHY) based on CSS modulation. Transmission takes place in unlicensed sub-gig ISM bands.

Rubber duck antenna is used for the receiver and transmitter. Also, a Yagi-Uda antenna was designed and constructed to achieve a unidirectional and longer range. The Yagi-Uda antenna is the most widely used type of antenna for TV reception over the past few decades and is renowned for its high gain and directionality.

