"Robby" Capstone Project 2022-23

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Abstract

Within the project, multiple environmental and ambient readings are collected from a network of multiple sensors, and dedicated equipment, communicating via multiple protocols, frequencies, and standards. The readings combined with data gathered from the interaction with the user via voice, picture, and video collected by the autonomous, intelligent machine wandering around based on an automatic vacuum, will be sent to a cloud infrastructure for further processing and decision making. Data will be depicted in a dedicated, interactive webpage, and also provided as a feed to user's mobile application(s). Power user(s) can also interact with "Robby" via Bluetooth proximity identification. The projects aims to be continuous, and beyond the end of the current capstone project.

Cloud

MQTT broker

dataBase

Multiple Protocols
Wi-Fi (802.11
RPL (802.15.4
LoRA
NB-IoT
Multiple Frequencies
2.4 GHz
5.4 GHz
868MHz

Access Point

Web page

Team Members
Nawaf Alzahem
Fahad Aldulaigan
Mohammad Abuhaimed
Khalid Abu Alsaud
Khalid Hali

Web Camera

Hi, I am Robby, How can I help?

Bluetooth Proximity

802.15.4

802.11

Noise level Sensor

Peak Hours

Multiple sensors:
Temp, humid, press
CO/CO2
Gases

Vacuum robot

Food Court