SMART WATER MANAGEMENT

Introduction

A wireless sensor network is a network composed of a set of nodes integrating the functions of acquiring, processing, communicating. Once deployed, the nodes cooperate with each other autonomously to collect and transmit data to a base station in order to monitor and / or control a phenomenon. Nowadays, the use of WSN knows a great boom in areas as diverse as the military, medicine, the environment and precision agriculture Precision agriculture can be defined as the art and science of using technology to improve crop production. This is achieved by providing information pertinent to agriculture properly related to metrological factors (temperature, humidity, sunshine, wind. In this context, implementing smart irrigation techniques that improve the efficiency of water use will help farmers to make their activities more profitable while at the same time enhancing the sustainability of agriculture in its together. Experimental results have shown that the reliability and the increase of crop growth1,2,3. Nowadays several IOT cloud platforms have been put on the web. These latest user interface offers friendly-uses to anyone who wants to monitor at a lower cost connected objects. Despite their use in automotive and smart city applications, the integration of these in precision agriculture applications is not very widespread. In this project we are interested in setting up and testing a system based on the network of wireless sensors and the Internet of objects and IOT cloud platforms in the context of precision agriculture. In this paper we propose to describe a prototype system based on a network of sensors and an IOT cloud that alerts the farmer when the crops need to be irrigated.

Objective

To stop Wastage of water due to overflow and leakage from the Water reservoirs and analysing the quality of water in the reservoir. We can examine the quality of the water, before hand it is supplied to the society flats, to avoid water borne diseases if the quality of the water is bad.

Related work

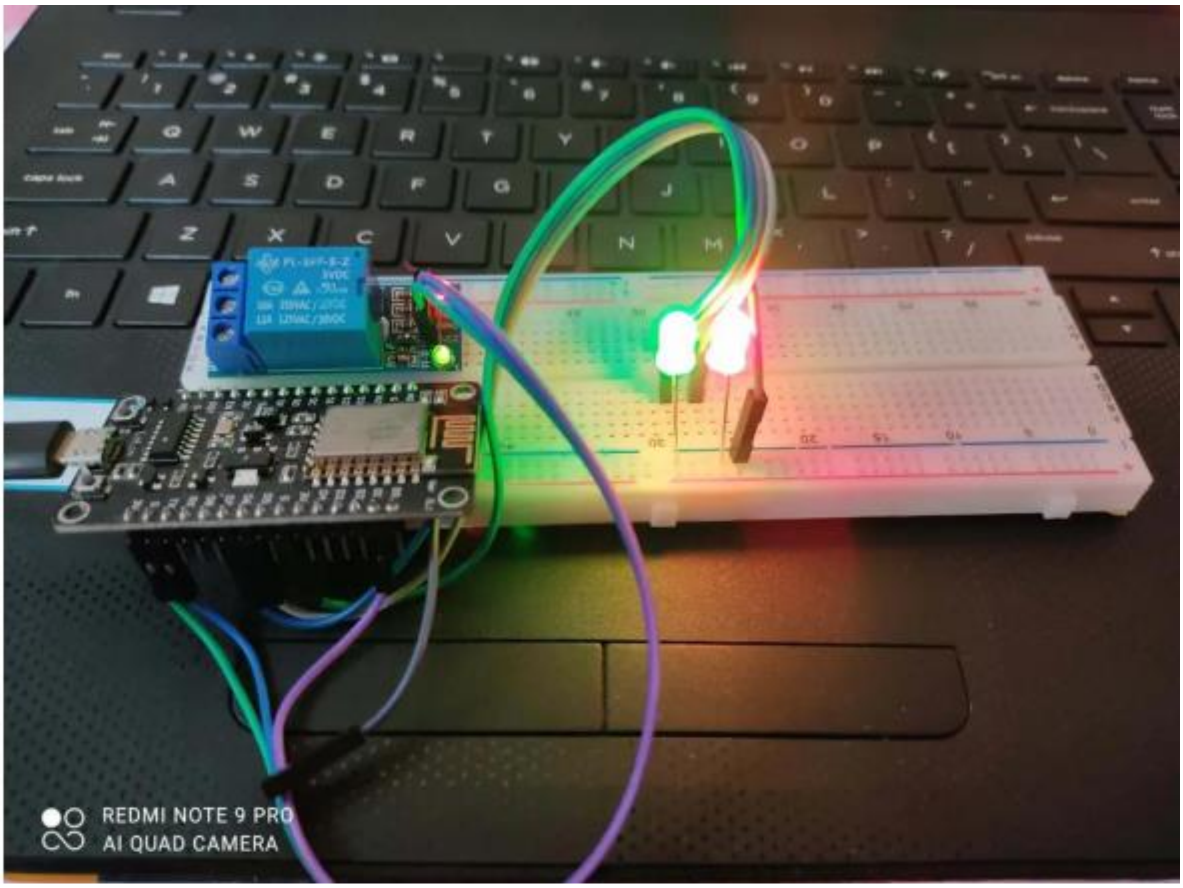
IoT frameworks and platforms are still immature for agriculture, but there is a trend now to apply IOT in the agricultural sector. In 12 Duan Yan-e et al proposed an IOT application that provides agricultural information and crop information to farmers on the basis of collected wireless sensor network data. This information is used to ensure that the rate of Fertilizer application and within the recommended limit. In 13 Xiangyu HU et al. Developed an IOT application for remote monitoring and control of agricultural fields, which is based on the analysis of data collected by the wireless sensor network, which has enabled farmers to minimize the cost of hand And the efficient use of water resources. In 14 Andreas Kamilaris et al. Have proposed an application called Agri-IOT allowing the analysis and the processing of data coming from a network of sensors (WSN) while exploiting the semantic aspects. This will make it possible to associate an easy publication of data on the semantic web.

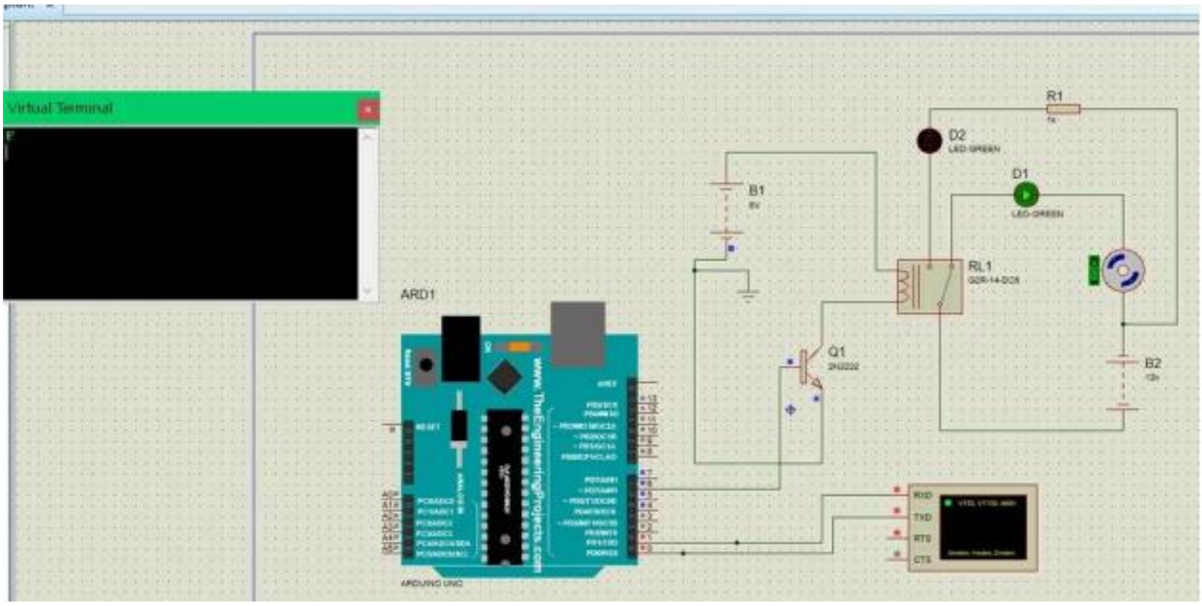
IOT Cloud

IoT (Internet of Things) is a scenario in which objects, animals and people are assigned as unique identifiers, IOT makes it possible as the ability to transfer data over a network without requiring any human interaction To-human or human-to-machine. The architecture of the Internet of the objects Fig2 relies mainly on 4 processes allowing to collect, to store, to transmit and to treat data from the physical world. The role of the different processes presented in Fig 2 is described as follows: • collect data: refers to the action of transforming an analog physical magnitude into a digital signal. • Interconnect: allows you to interface a specialized object network with a standard IP network (e.g. WiFi) or consumer devices. • Store: qualifies the aggregation of raw data, produced in real time, meta tagged, arriving in an unpredictable way. • Finally, presenting indicates the ability to restore information in a way that is understandable to humans, while offering a means of acting and / or interacting.

Implementation

This System can be implemented in the Societies, Industries, Hospitals and Schools in the cities.

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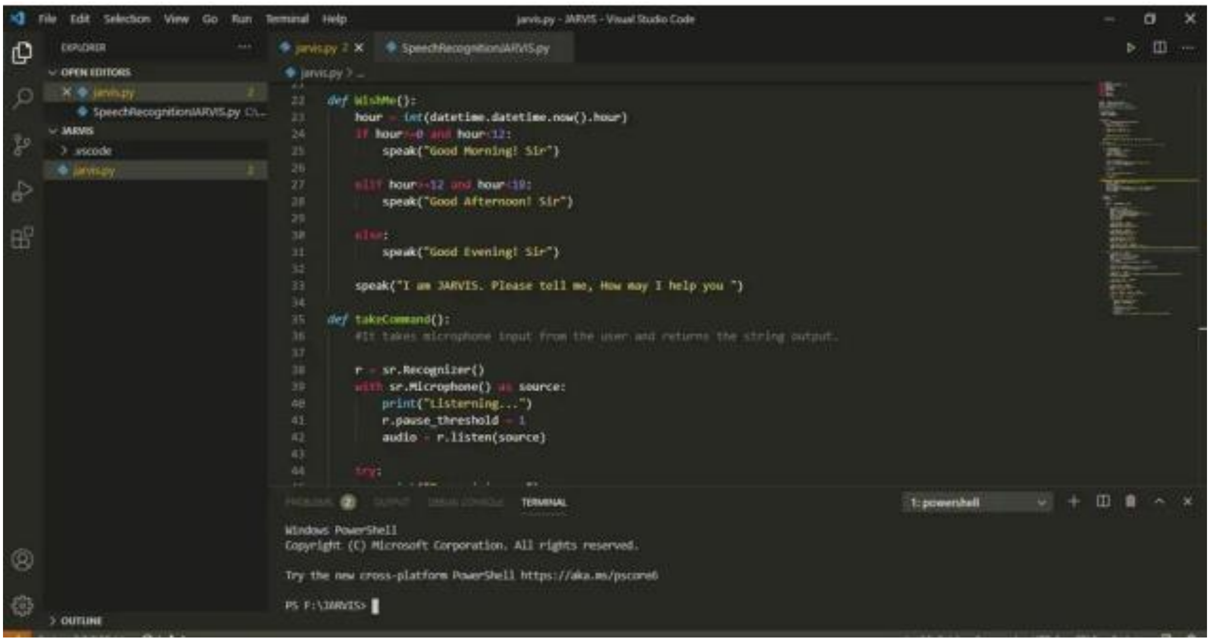
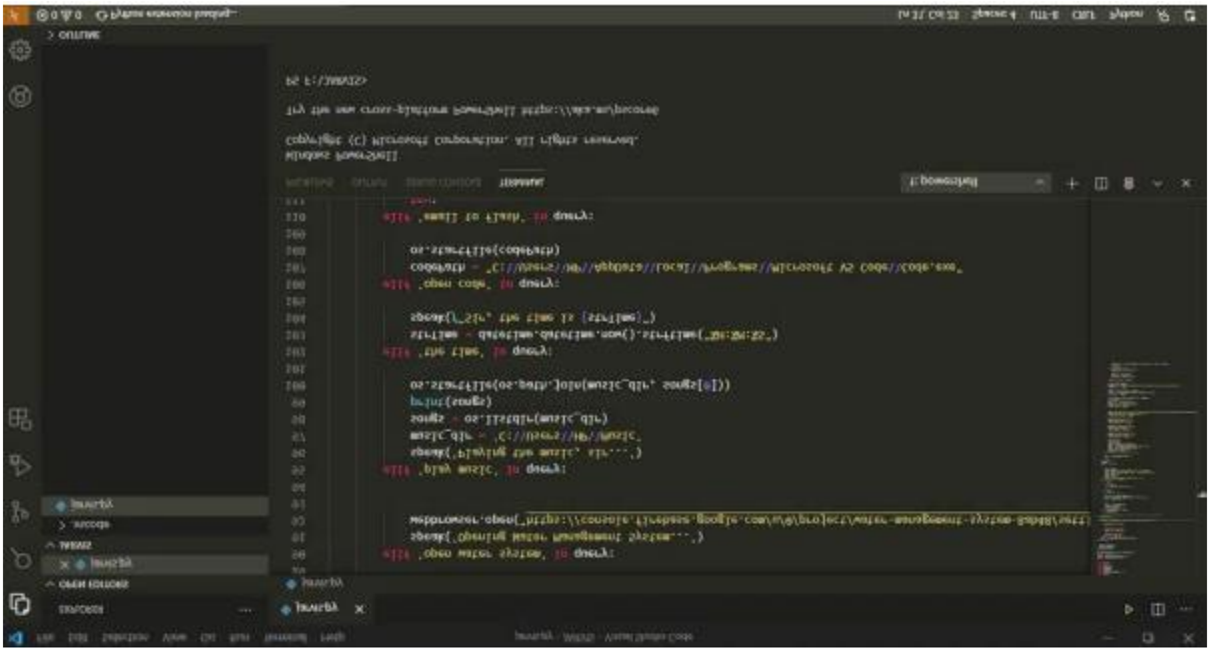

jarvis.py - JARVIS - Visual Studio Code
File Edit Selection View Go Run Terminal Help
EXPLORER
OPEN EDITORS
jarvis.py
SpeechRecognitionJARVIS.py
JARVIS
.vscode
jarvis.py
def WishMe():
hour = int(datetime.datetime.now().hour)
if hour>=0 and hour<12:
speak("Good Morning! Sir")
elif hour>=12 and hour<18:
speak("Good Afternoon! Sir")
else:
speak("Good Evening! Sir")
speak("I am JARVIS. Please tell me, How may I help you ")
def takeCommand():
#It takes microphone input from the user and returns the string output.
r = sr.Recognizer()
with sr.Microphone() as source:
print("Listerning...")
r.pause_threshold = 1
audio = r.listen(source)
try:
TERMINAL
1: powershell
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.
Try the new cross-platform PowerShell https://aka.ms/pscore6
PS F:\JARVIS>
OUTLINE



Conclusion

The emergence of IoT is a phenomenon that owes to the conjunction of several factors and now starts to become real with huge effort both in research and business areas. In this context, the SWAMP project develops IoT-based methods for smart water management in precision irrigation, and pilots them in Italy, Spain, and Brazil. This paper introduced the SWAMP architecture, pilots and deployment scenarios for the four pilots using FIWARE as the underlying IoT platform.

A performance analysis of key FIWARE components personalized for each SWAMP pilot scenario was undertaken to understand the scalability limits of the system. The results show that this platform might be able to deal with the performance requirements of our pilots, even though requiring specially designed deployment configurations and the re-engineering of some components to provide higher scalability using less computational resources. Particularly, our experiments showed that MongoDB is CPU greedy, which negatively impacts system performance.

SWAMP is an ongoing project and therefore there are multiple paths for future work. Some examples are improving the platform deployment scenarios, reporting the overall working of the SWAMP approach in the pilots, including the experience with irrigation models and analytics and more advanced performance analysis.