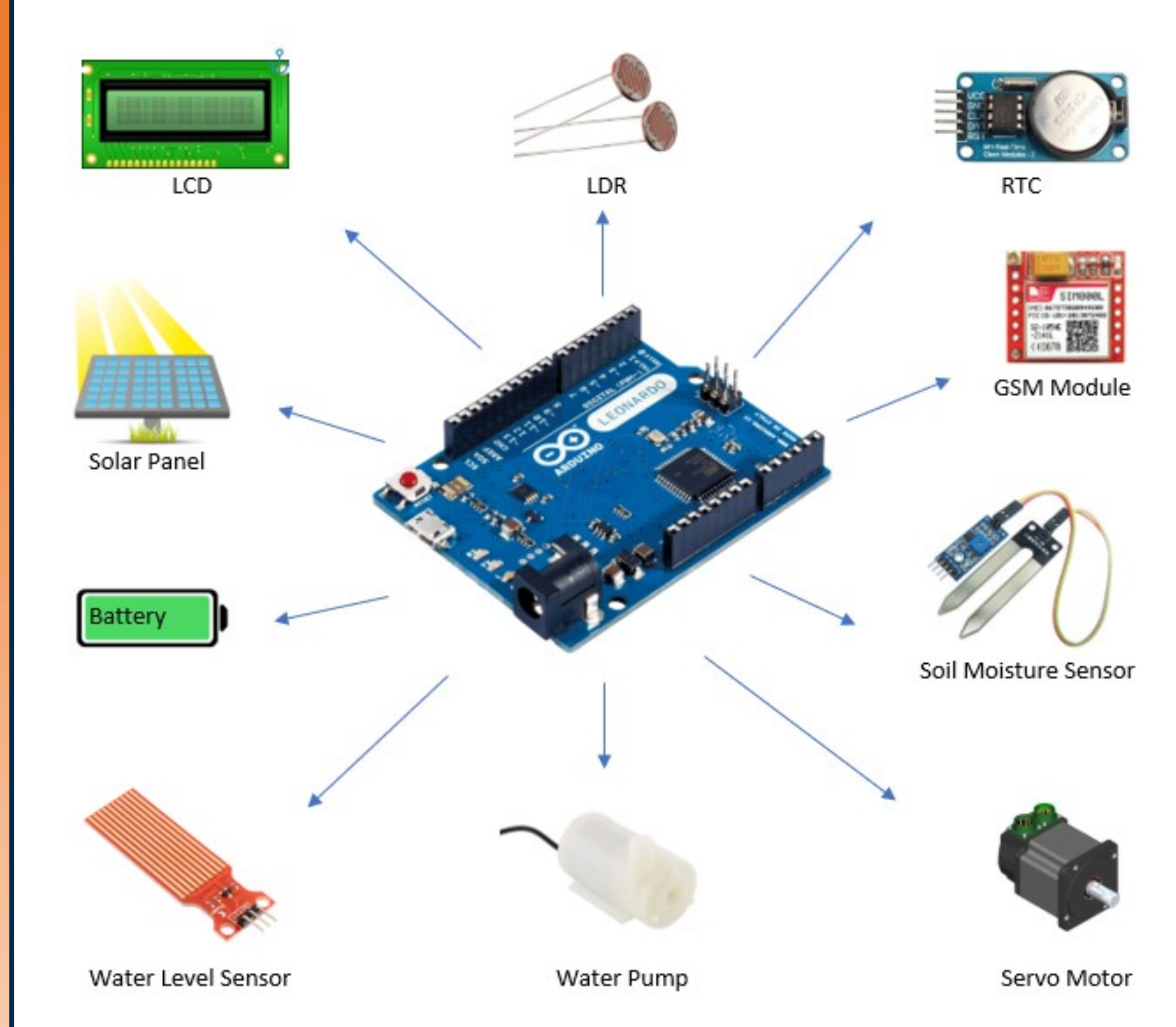# İzmir Ekonomi Üniversitesi

Arduino-based Automated Irrigation System (ABAIS)

Emre Aslan, Serkan Yılmaz, Fatoş Cura, Mehmet Kızılırmak — Supervisor: İlker Korkmaz

ABAIS that is Arduino-based automated irrigation system is irrigation system with measurement. As in all irrigation systems, the main target is the irrigation efficiency. In addition, the energy requirement of the project is provided by the solar panel system. The system will help us to collect energy from the sun in the most efficient way.

LCD • LDR • RTC • GSM Module • Solar Panel • Battery • Soil Moisture Sensor • Water Level Sensor • Water Pump • Servo Motor
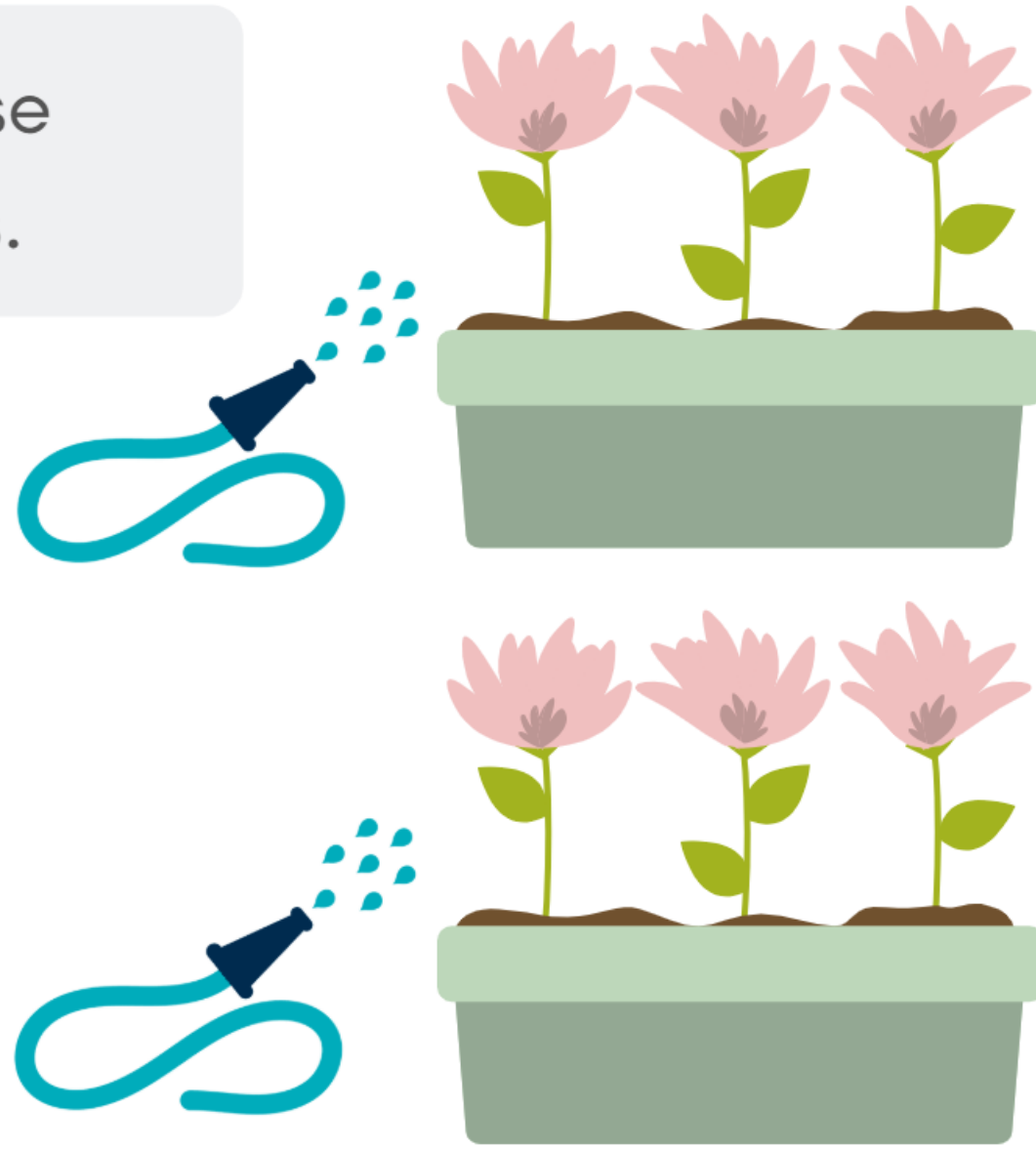
There are real-time clock module and soil moisture sensor as auxiliary elements to solve the difficulty of plants care and follow-up task. Real-time clock (RTC) modules are used to timekeeping. Time is important for efficiency in the project. The operation of the system and the provision of solar tracking are supported by Real-time clock (RTC).

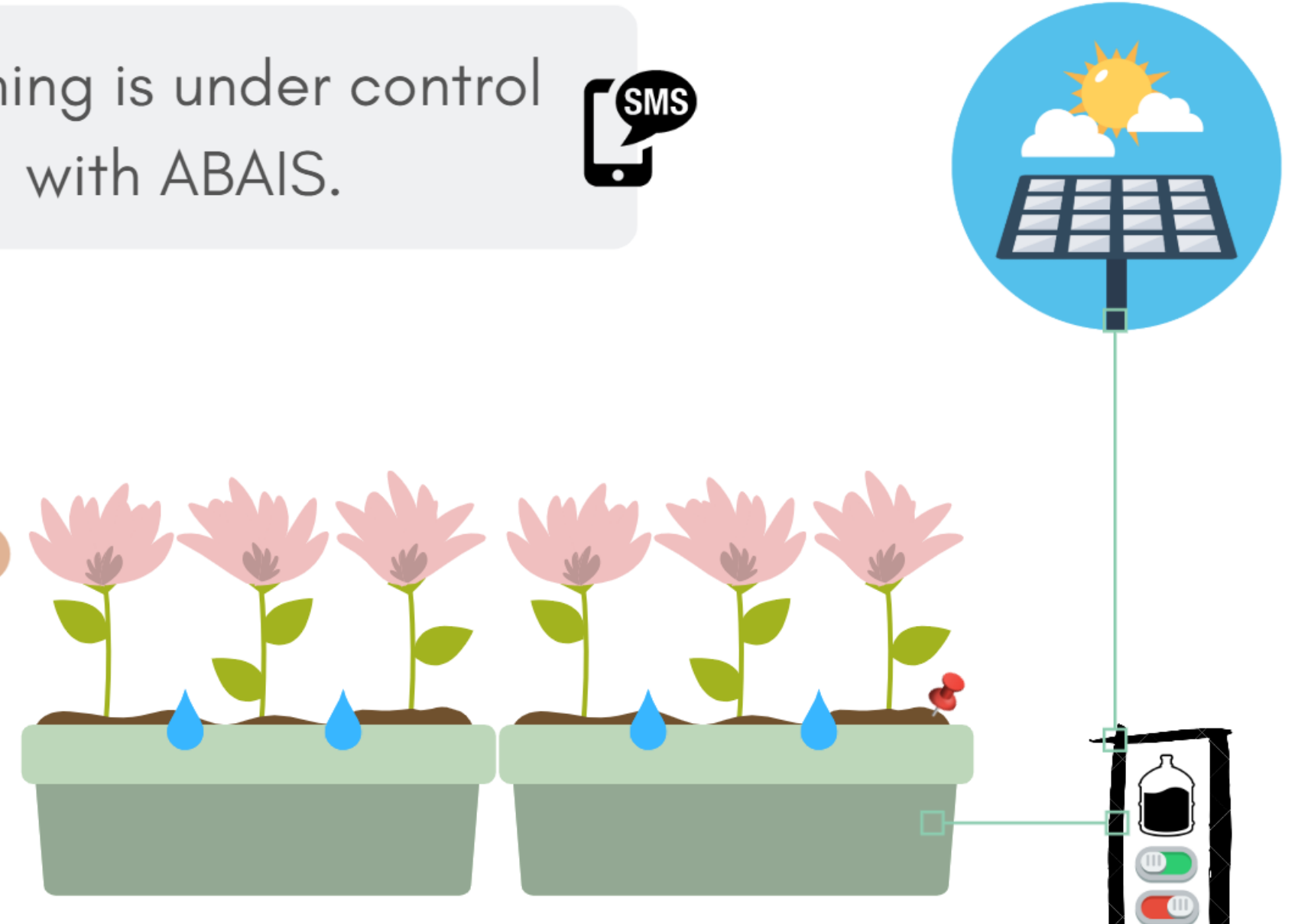## Without ABAIS

Arduino-based automated irrigation system

I can't leave the house because of my pots.

For maximum efficiency, light dependent resistors (LDR) is used. ABAIS have a sim card module and character liquid crystal display for communication plus informative tracking. Users can easily track datas which comes from sensors. Thanks to the sim card module, system is used short message services (SMS) for communication. There is no range limitation in GSM like Bluetooth.

With ABAIS

Arduino-based automated irrigation system

Everything is under control with ABAIS.

Soil moisture in the system is monitored by soil moisture sensor. Also, there is a water level sensor and water pump. In design, the sensor will follow the amount of water in the tank and the pump transfers water to the required place.

The basic formula for irrigation are as follows:
- Only between 18 and 6 o'clock
- The humidity in the soil must be below 20%.