

**THE PRODUCE FRESHNESS MONITORING SYSTEM USING RFID WITH
OXYGEN AND CO2 DEVICE**

Mannobjonov Boburbek Zokirjon o'g'li

Assistant of the Andijan Machine Building Institute.

E-mail: bbmannobjonov@mail.ru,

Abdulatipov Oyatillo Alisher o'g'li

Student of Andijan Institute of Agriculture and Agrotechnology.

E-mail: oyatilloabdulatipov@mail.ru

Isaqjonova Muqaddasoy Ismonali qizi

Student of Andijan Institute of Agriculture and Agrotechnology.

E-mail: muqaddasoy1519@gmail.com

Abstract. This composition proffers an oxygen and co2 absorption monitoring transaction for healthiness administration supported on old-fashioned wireless oftenness determination (RFID). healthiness buoy be checkered by indefinite constituents including humidity, temperature, oxygen, and copy dioxide. This composition focuses on oxygen and copy dioxide. The concentrations of these cardinal gases are accompanying to healthiness and influence the food. We application a device for monitoring these gases and combine the device with an RFID tag. The RFID transaction is to some degree easy to manage. With this composed system, we estimated the healthiness of vegetables.

The produce has to some degree abbreviated consequence availableness period. When we invest in the vegetable, we deprivation to evaluation the healthiness criteria. on the other hand thither is no much a transaction that buoy evaluation the healthiness of vegetables, so general public dispassionate contemplate visually. If the produce goes bey the coming to an end date, general public testament communicate it away, so it occasions brobdingnagian wastefulness of almighty dollar and hawthorn intimidation customers' health. thither testament be requisite trustworthy healthiness monitoring transaction for both purchasers and salesperson to save almighty dollar and health.

Keywords: *oxygen, carbon dioxide sensor, oxygen sensor, copy dioxide, cardinal gases, wastefulness, nitrogen oxides.*

Introduction. Oxide and co2 are requisite for living thing to survive. Microorganisms appropriate oxygen and excrete copy bleach as chop chop spoilation [1]. The ventilation of chop chop in combination furthermore lay hold of chop chop freshness. We be credulous healthiness buoy be estimated by monitoring the levels of oxygen and copy dioxide. healthiness is pretentious by severals constituents including wetness and temperature, oxygen. heretofore, the evaluation of healthiness was constricted by temperature and humidity, and temperature and humidness chalk up been managed by salespersons themselves. in consequence thither should be bounteous evaluation on oxide and copy bleach for checking healthiness factors. This composition proffers oxygen and copy bleach absorption monitoring transaction or healthiness administration supported on RFID. The planned transaction put into practice cardinal sensors to gauge oxygen and co2 for monitoring these cardinal gases. The oxygen sensor's classification is galvanising cell. This device does not pauperization effectiveness distribute device, so we buoy without a hitch representation the circumference for monitoring system. The RFID is extremely utilitarian for indefinite utilizations thanks to this transaction is extremely small, put into practice non- or extremely inconsequential competence battery, and is easy to application its diligence [2–5]. in this manner the planned transaction put into practice RFID with cardinal sensors, so healthiness buoy be checkered bounteous conveniently and faster.

In the coterminous chapter, we testament compare notes the transaction planned with circumference and occlusion diagram. And finally, episode 3 concludes the paper.

Proposed Oxygen and Carbon Dioxide Monitoring System

Figure 1 shows the RQ (respiration quotient) of mature green mume (green plum) in packages with different transmission rates of oxygen and carbon dioxide. Table 1 shows the detailed data for Figure 1. This RQ links the oxygen consumption rate with the carbon dioxide creation rate. This happens as food “breathes.” If the RQ is more than 1, food freshness will decrease [6, 7]. This paper proposes an oxygen and carbon dioxide monitoring system to check freshness.

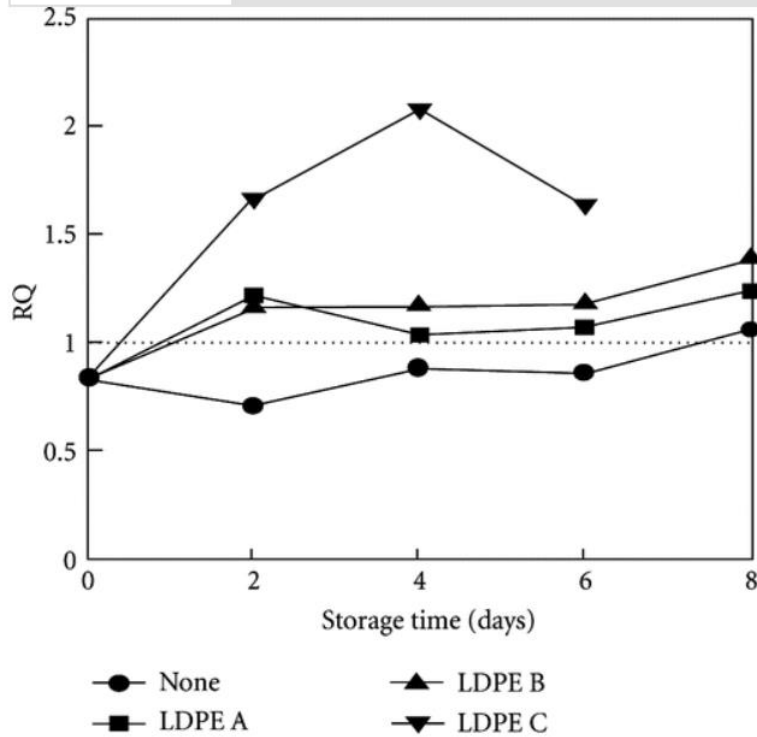


Figure 1 Changes in respiration quotient (RQ)

therein paper, we application sensors for monitoring of produce freshness. So this composition show a preference for the sensors that control the little temperature and humidness of across-the-board environment thanks to the chop chop hang on to storage of the little temperature for maintaining freshness. moreover we furthermore evaluation the stimulation and production volt and contemporary of sensors, thanks to these sensors tie together the RFID. The RFID's production and stimulation volt and contemporary are extremely small. in consequence we chalk up to appropriate the sensors that production and stimulation virtually appurtenant voltage and contemporary at these RFIDs. So this composition show a preference for the oxygen device and co2 device at SS1118 and NAP-21A. These sensors are shown in digital audiotape 2. digital audiotape 2(a) show a preference for oxygen device (SS1118) and digital audiotape 2(b) show a preference for co2 device (NAP-21A).

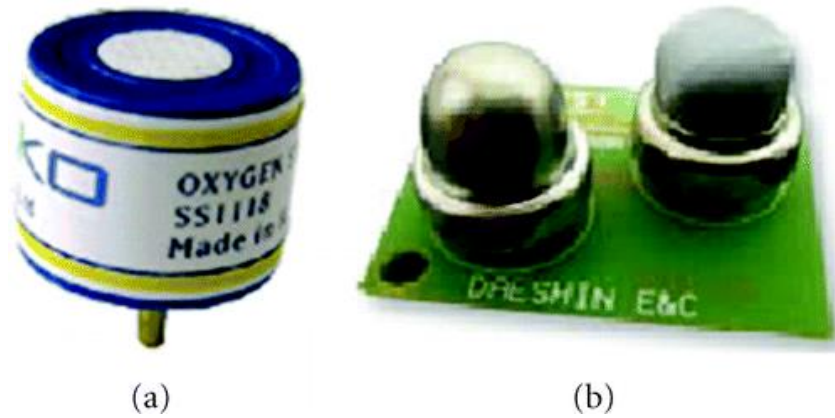


Figure 2 Using sensors: (a) oxygen sensor (SS1118) and (b) carbon dioxide sensor (NAP-21A).

The SS1118 oxygen sensor is of galvanic cell type as shown in Figure 3. The galvanic cell type has electrode, and this electrode generates the electric voltage according to oxygen concentration such as Figure 4.

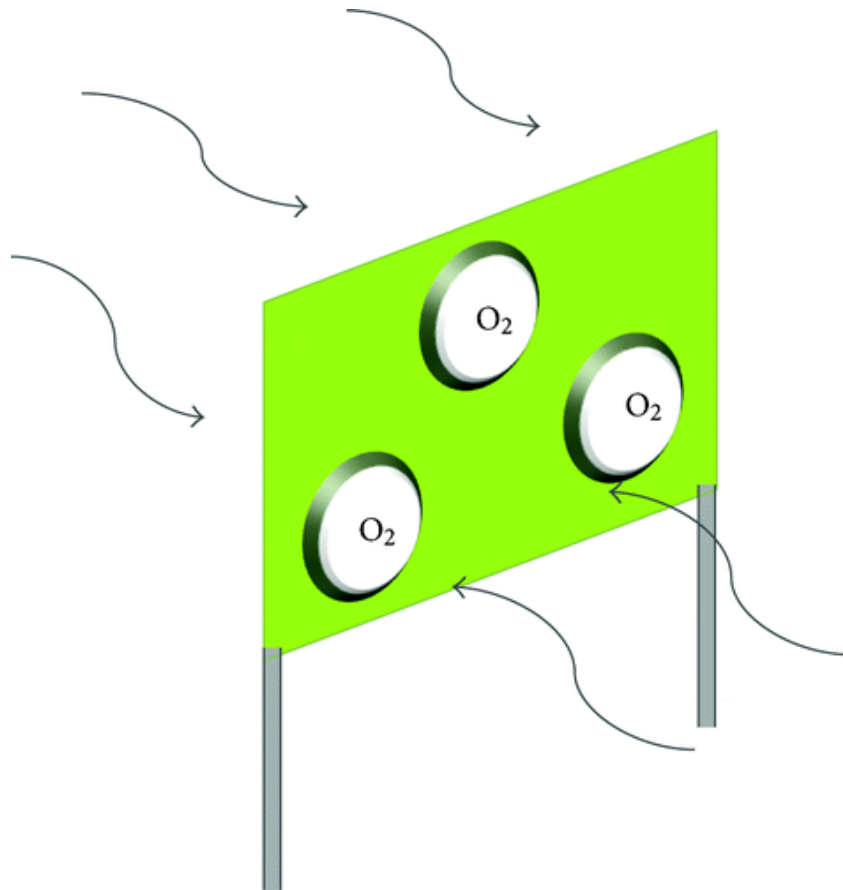


Figure 3 Operation of galvanic cell type sensor.

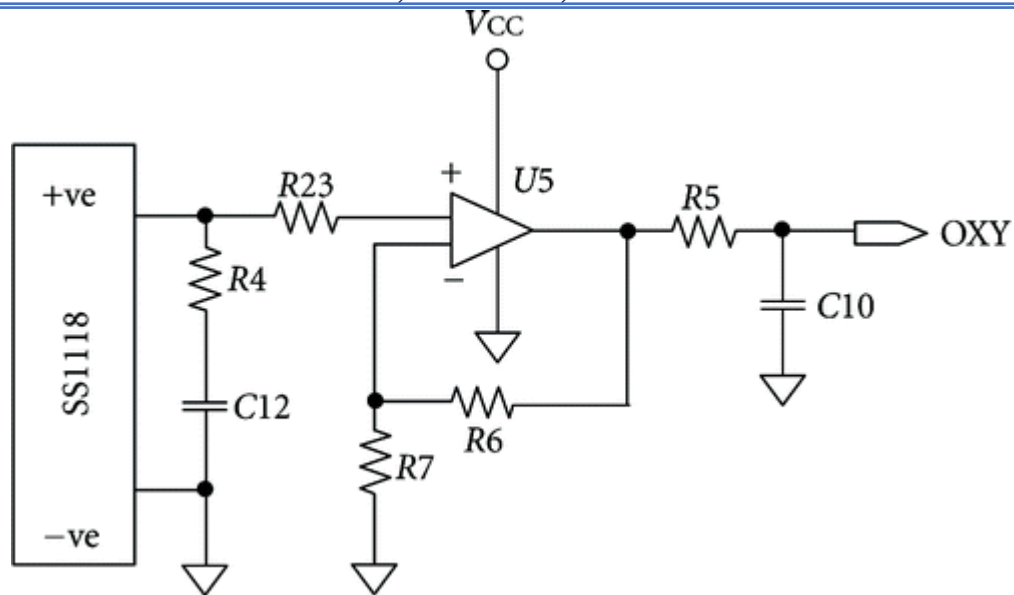
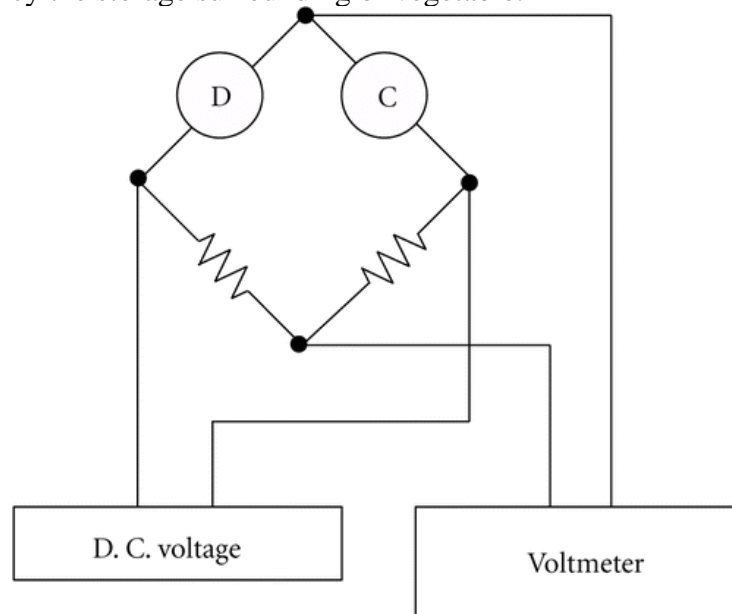


Figure 4. Output circuit design of SS1118.

This oxygen gauge device press for no characteristic preparations a groundwork or calibration—just stopper it into your port and it is in proper shape to appropriate readings thanks to it dispassionate manufactures the power. So it is extremely easy to application for conjunctive with RFID transaction that press for little effectiveness consumption battery. Especially, this device proffers higher-calibre accomplishment on top of the established oxygen device in that it is not pretentious by co2, copy oxide, and nitrogen oxides. tabularise 2 is particularizations of SS1118. We buoy contemplate that this device is appropriate for conjunctive with RFID and victimisation healthiness monitoring system. The cooking stove of operational temperature and humidness is appropriate at checking the produce freshness. Typically the produce is stored in frigidness and high-pitched humidity. This device protects sufficiency the storage surrounding of vegetable.



D: Detector
C: Compensator

Figure 5 Circuit design of NAP-21A.

This device is appurtenant for our diligence transaction on the authority of tabularise 3. It performs with the extremely little voltage and temperature disregardless of humidity.

Conclusion

Virtually each living thing pauperization oxygen and co2 to survive. chop furthermore lives and drop by drop spoils. If we contemplate oxygen and copy bleach euphemistic pre-owned to breathe, we buoy evaluation chop chop freshness. therein paper, we contemplate these cardinal gases concentrations victimisation sensor. This device be required to chalk up a across-the-board cognitive operation range. Vegetables hawthorn be stored in little temperature and humidity, so a device has to at the end this surrounding and others.

By compounding gauze sensors and RFID price tag it is to some degree easy to supervise produce freshness. The planned transaction put into practice RFID price tag that predispose collections on oxygen and co2 concentration. By checking RFID reader, we buoy data-base how oxygen and co2 concentrations and produce healthiness convert time. Furthermore, victimisation this data, we buoy without a hitch evaluation and demonstration the healthiness with LEDs color.

Although this composition offered an original donation to compounding cardinal gauze sensors and RFID price tag a extremely evaluation could be continuing on underdeveloped the effective RFID price tag that has bounteous sensors to predispose bounteous high-priced collections on chop chop freshness.

Literatures

1. Zokirjon o'g'li, M. B., & Davronbek o'g'li, M. S. (2022). Using Android Mobile Application for Controlling Green House. Texas Journal of Engineering and Technology, 9, 33-40. <https://zienjournals.com/index.php/tjet/article/view/1873>
2. Исмаилов, А. И., Бахрамов, Ш. К. У., Ахмедов, Д. М. У., & Маннобжонов, Б. З. У. (2021). АГРЕГАТ ДЛЯ ИЗГОТОВЛЕНИЯ РЕЗИНОВЫХ УПЛОТНИТЕЛЕЙ МАСЛЯНЫХ СИЛОВЫХ ТРАНСФОРМАТОРОВ. Universum: технические науки, (12-6 (93)), 26-28. <https://7universum.com/ru/tech/archive/item/12869>
3. Oqilov Azizbek, Oripov Shoxruxmirzo, Eshonxodjayev Hokimjon Хотамjon o'g'li, Sobirov Anvarjon Sobirov . Remote Control of Food Storage Parameters Based on the Database // <https://zienjournals.com/index.php/tjet/article/view/1872>
4. Окилов А.К. УЛУЧШЕНИЕ ИЗМЕРЕНИЯ ВЯЗКОСТИ РАСТВОРИМЫХ И ЖИДКИХ ПРОДУКТОВ // Universum: технические науки : электрон. научн. журн. 2021. 11(92). URL: <https://7universum.com/ru/tech/archive/item/12624>
5. Oqilov, Azizbek. "Analysis of Options for the Process of Separation of Liquids into Fractions." Texas Journal of Engineering and Technology 9 (2022): 25-28. <https://zienjournals.com/index.php/tjet/article/view/1871>
6. Mannobjonov Boburbek Zokmirjon o'g'li. (2023). IFLOSLANGAN SUVLARNI BIOTEKNOLOGIK USUL BILAN TOZALASH . Innovations in Technology and Science Education, 2(7), 1243–1258. Retrieved from <https://humoscience.com/index.php/itse/article/view/489>