AGRICULTURAL ASSISTANT BASED ON ARTIFICIAL INTELLIGENCE, ABLE TO DETERMINE THE QUALITY OF WHEAT

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Annotation. The development of artificial intelligence robots in agriculture can bring many benefits, including increased productivity and product quality. However, such changes can lead to negative consequences, including job losses and environmental impacts. In this regard, it is necessary to conduct research and develop regular measures to ensure minimal damage to society and the environment.

Keywords: robot, artificial intelligence, energy source, process automation

Agriculture is one of the oldest branches of the economy, which is constantly developing and improving. Today, along with traditional methods of agriculture, artificial intelligence is increasingly being used.

The use of AI in agriculture can improve the efficiency and accuracy of production processes, as well as reduce their costs. One of the main directions of

using artificialoro intelligencea in agriculture is the automation of production management processes. For example, a system of automatic control and management of technological processes in crop production is being introduced. With its help, you can set the optimal irrigation regime, determine the required amount of fertilizers, monitor soil quality, and so on. Another example of the use of artificialoй intelligencea in agriculture is the creation and use of drones to analyze the state of fields and determine the level of yield. Drones are equipped with special cameras and sensors that allow you to get information about the state of plants and soil, as well as weather conditions. This allows you to determine the optimal time for harvesting, reduce the cost of fertilizers and harvesting, and increase the efficiency of resource use.

Another important area of application of artificialй intelligence in agriculture is the creation of a weather forecasting system. The system can be used to determine the optimal time for sowing, fertilizing and harvesting, as well as to make decisions in case of extreme weather conditions. Also, artificial intelligence can be used to create a system for monitoring animal health. For example, the system can analyze data on the pulse, temperature, and other health indicators of animals, as well as their behavior. This allows you to detect diseases in a timely manner and take the necessary measures. Thus, the use of artificialoro intelligence in agriculture can increase production efficiency, reduce production costs, and improve product quality. With the development of technologies and the increasing availability of artificialoro intelligencea, its use in agriculture will only increase, which will create more efficient and environmentally friendly production systems.

Modern agriculture has become significantly more efficient and productive thanks to the use of new technologies. Artificial intelligence and robotics in agriculture is one of the most promising areas that can help improve production processes and improve product quality.

The development of artificial intelligence robots in agriculture is the process of creating automated systems that can perform various tasks related to crop

production. For example, robots can harvest crops, work the soil, fertilize and water plants.

One of the main tasks of developing artificial intelligence robots in agriculture is to increase production efficiency and reduce labor costs. Robots can perform tasks faster and more accurately than humans, which reduces the time spent on harvesting and other production processes. It also reduces labor costs and reduces the risk of mistakes that can lead to crop loss.

Another important task of artificial intelligence robots in agriculture is to improve the quality of products. Robots can monitor the state of the soil and plants, analyze the yield level and determine the need for fertilizers. This allows you to optimize production processes and improve product quality.

However, the development of artificial intelligence robots in agriculture also has its risks and negative consequences. For example, this can lead to job losses and environmental impacts if they run on electricity or other energy sources that may be harmful to the environment. Therefore, it is important to conduct appropriate research and develop regular measures to minimize negative consequences. For example, you can train local agricultural workers to use artificial intelligence robots so that they can work with them together. In addition, more environmentally friendly energy sources can be used to power robots.

In general, the development of artificial intelligence robots in agriculture has great potential to improve production processes and increase production efficiency. However, it is necessary to take into account possible risks and negative consequences and develop appropriate measures to minimize them.

The development of an artificial intelligence robot to check wheat diseases can significantly improve the quality and quantity of the crop, which is extremely important for agriculture. Currently, the diagnosis of wheat diseases is carried out manually, which requires considerable time and effort. The use of artificial intelligence robots will automate this process and speed it up.

Artificial intelligence robots can be trained to find and classify different types of wheat diseases. They can use a variety of techniques, such as computer vision and

data analysis, to determine the presence of the disease. In addition, AI robots can collect information about weather conditions and other factors that may affect the development of the disease.

In general, the use of artificial intelligence robots to check wheat diseases can bring many advantages, but it is necessary to take into account possible negative consequences and take measures to minimize them.

One of the solutions is the robot proposed in the article, which recognizes the wheat disease in the field (Fig. 1). At the moment, the robot is trained in 4 diseases, which is more common in the Republic of Uzbekistan. The accuracy of wheat disease recognition efficiency is 72%.

Figure 1. General view of the robot

Code

```
# STEP 1:
import mediapipe as mp
from mediapipe.tasks import python
from mediapipe.tasks.python.components import processors
from mediapipe.tasks.python import vision

# STEP 2:
base_options = python.BaseOptions(model_asset_path='classifier.tflite')
options = vision.ImageClassifierOptions(
    base_options=base_options, max_results=4)
classifier = vision.ImageClassifier.create_from_options(options)

images = []
predictions = []
for image_name in IMAGE_FILENAMES:
  # STEP 3:
  image = mp.Image.create_from_file(image_name)

  # STEP 4:
  classification_result = classifier.classify(image)

  # STEP 5:
  images.append(image)
  top_category = classification_result.classifications[0].categories[0]
  predictions.append(f"{top_category.category_name} ({top_category.score:.2f})")

display_batch_of_images(images, predictions)
```

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