Program Design of a Color Spectrum Detection Device

Assoc. Prof., Shuhratjon Xidirov Namangan Institute of Engineering and Technology,

Master's student, Ahrorbek Sobirjonov Namangan Institute of Engineering and Technology

ABSTRACT

The article presents the technology of creating a new modern seed sorting device for efficient use of agricultural machinery

Keywords: aerodynamic sorter, dielectric sorter, spectrum

Introduction

The principle of operation of the newly modeled color (spectrum) and aerodynamic sorting seed sorter is as follows: the seed goes from the feeder 1 to the seed belt conveyor, and through the conveyor, the spectrum passes through the spectrum separation chamber 3. mixtures with a high level of hairiness and various impurities are expelled through 4 chambers with the help of air. Seeds matching the colors of the spectrum fall into the aerodynamic sorting chamber 5 (Fig. 1).

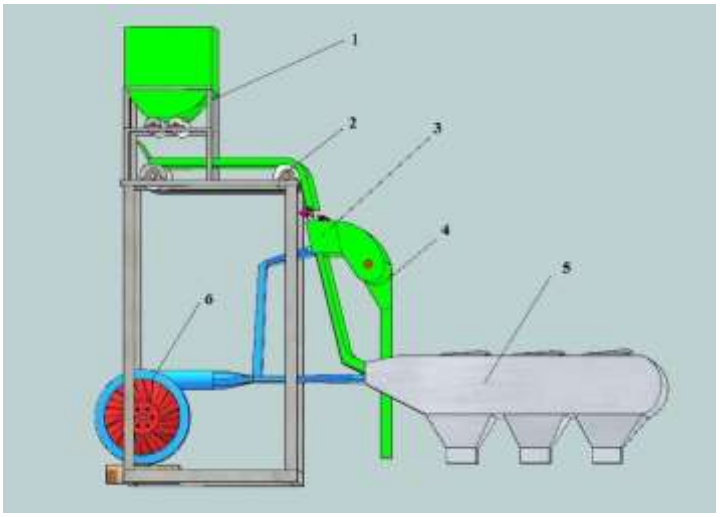

Fig. 1. Schematic of the spectral aerodynamic filter device

1- feeder, 2- spectrum analyzer, 3- seed flow control device, 4- executive pneumatic mechanism, 5- program design of aerodynamic feeder detection device.

As a result of the reduction of the air speed in the separation chamber, the split seeds are separated into fractions due to their aerodynamic properties under the influence of gravity. Full seeds are sent to the first section of

the collector, medium to the second collector, loose and light seeds to the last collector according to the air flow, and dust and impurities are removed from the separation chamber by the air flow outlet.

We will design the program of the color spectrum detection device using the Arduino Uno program. This program will look like this.

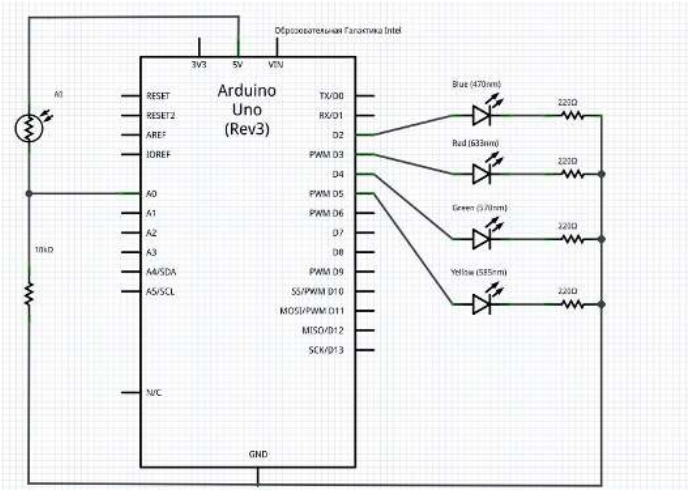

Figure 2. Spectral separation scheme.

Conclusions

Among the considered separators, the most promising are those that work on the basis of the electrical method.

1. As a result of the application of the spectral aerodynamic sorter, we will have the opportunity to sort high-quality seeds.
2. As a result of justifying the energy consumption of the device, we present its main parameters to the production based on the comparison of the saving of electricity.

To solve the above we need to do the following:

- study of some physical and mechanical properties of seed;
- adaptation of the working body and main dimensions of the known dielectric separator, as well as operating modes to the separation of seeds;
- justification of the technical and economic dimensions of the dielectric separator in laboratory conditions and in the seed preparation system.

References

1. Cotton: World Statistics. Bulletin of the International Cotton Advisory Committee, NY, November 2015. http://www.ICAC.org.,http://www.USDA.gov.
2. Yusubaliyev A. Elektricheskoye protravlivaniye semian khlopchatnika. Dissertation candidate of technical sciences, Yangiyul, 1985, 148 pages.
3. Yusubaliyev A., Shoyimov P. Dielectric separator semin khlopchatnika. Trudy Uz NIIME., Tashkent., 1992, pp. 151-154.
4. Shoyimov P., Mirzayev R.I and others. Measuring the electrical resistance of cotton seeds. Bukhara Institute of Food and Light Industry, 2008.
5. Shoyimov P., Mirzayev R.I and others. Dielectric seed sorter. Jizzakh Polytechnic Institute. 2008
6. Kh.T.Akhmedkhodjayev, A.Obidov Seed sorting devices monograph 2006 Namangan.
7. Tursunov Abdirasul Yulchibayevich Dissertation "Creation of efficient technology of sorting cotton seeds using air flow" Tashkent 2017
8. Michael D. Buser, Derek P. Whitelock, J. Cliff Boykin, and Gregory A. Separation of cotton ginning seeds. The Journal of Cotton Science 19:168–175