



Automatic Seeder Block Detection Using GSM

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Abstract:- In 19th century traditional way of farming is used by farmers. Seed sowing is one of the most important task performed by farmer while crop yielding. It is more time consuming task and required lot of manpower. There are so many another disadvantages also like wastage of seeds because seeds are not evenly distributed. So that automatic seed sowing machine is invented. Sometime blockage is arising in seeders nozzle due to extra seeds and stones. To overcome such problems we are developing a system named as "Automatic seeder block detection using GSM. This system helps farmers to increase average crop yielding.

Keywords: GSM, Seeder Nozzle, Smart phone, Dc Motor, Microcontroller

I. INTRODUCTION

The horse-drawn cart later turned into a wheeled vehicle that carried a box of seed in its rear. But sometimes there happen to be blockage in the nozzles of the seeder due to mud stones extra seeds etc. resulting in no seeds bowed in the farm or uneven distribution of seeds. This affected the average crop yield. Our project overcomes this disadvantage. If there is any blockage in the nozzle the seeder will stop and buzzer sounds. This blockage is also informed to the farmer or the tractor operator by sending him a message using GSM. The blockage is sensed by IR sensor.

II. PROBLEM DEFINATION

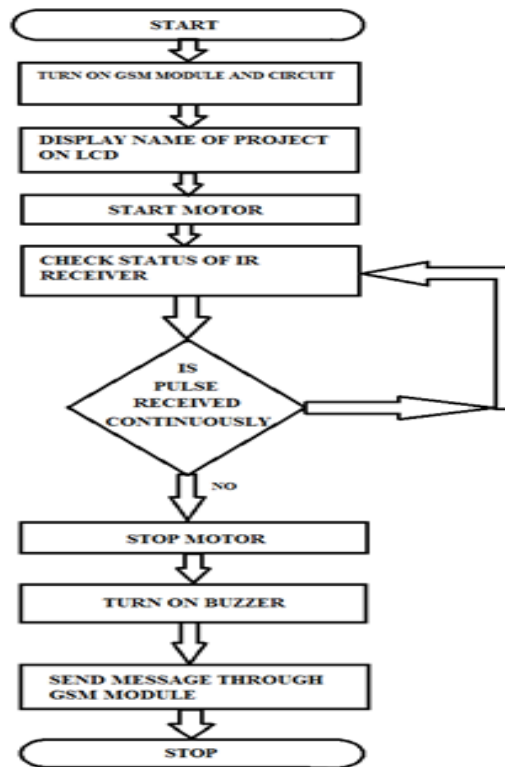
To design an system to monitor and produced solution to detect the blockage in nozzle due to large seed, stone etc. by using IR sensor. Blockage will be reported to the farmer using smart phone application (GSM).

III. PROPOSED SOLUTION

In Agricultural seeder machines have multiple row units for parallel sowing of seeds. Our proposed solution consists of the following features:

1. One pair of IR sensors (transmitter and receiver) will be required for each row unit. These sensors will be mounted on the inner side of the seeder nozzles.
2. They will detect blockage based on the continuous pulses of light measured by them at periodic intervals. An Infrared (IR) sensor is used to detect obstacles or blockage to differentiate between colours depending on the configuration of the sensor.
3. Every seeder machine will require one central microcontroller that communicates with all the sensors on all the row units.
4. It obtains the sensor outputs and displays the same on the LCD display as well as sends them immediately to the user's smartphone application via GSM.
5. Hence, the user will receive a notification on his smartphone every time a blockage is detected on any of the row units. He will know the exact location of the blockage so that he can take corrective action immediately.

IV.FLOWCHART OF SYSTEM



IV.SOFTWARE DESIGN

Software design is an integral part of this paper. Once the blockage is detected in any of the Seeder's Nozzle a text message is send to the user intimating him about the blockage. A message is send only once if continuously blockage is detected in the same nozzle. Following algorithm describes the software design of the system in brief.

V.HARDWARE DESIGN

Figure shows block diagram of given system

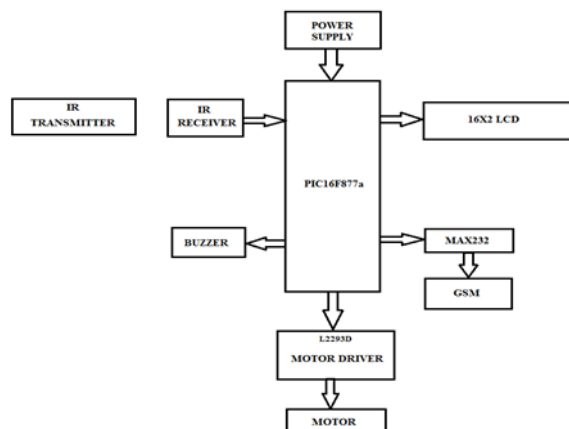
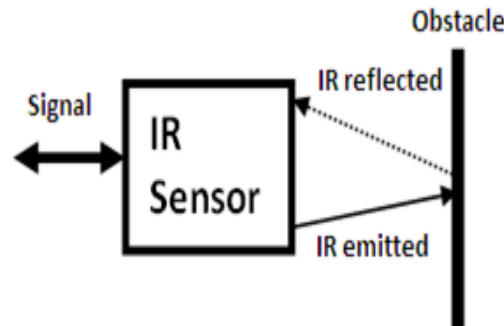


Fig.1.Block Diagram of System

1. IR Sensor

IR Transmitter transmit the IR signal and receiver receives the transmitted signal when seed passes between transmitter and receiver it blocks the IR signal and at receiver output it creates a pulses. When seed get blocked that time IR signal get block and output of receiver get constant pulse this pulse is detected by microcontroller.



2. GSM

The GSM modem which acts as a mobile phone accepts any GSM network operator SIM card with its own unique phone number [25] . The GSM module SIM 300 is interfaced with NUC140 through serial ports of the controller. The AT commands such as 1. AT- to check proper functioning of GSM modem, 2. AT+CMGF=1, to activate the text mode, 3. AT+CMGS= "Mobile Number", to send message to the mentioned number followed by the <message contents> are send through the serial port to configure GSM modem. Once the blockage is detected in any of the Seeder's Nozzle a text message is send to the user intimating him about the blockage. A message is send only once if continuously blockage is detected in the same nozzle.

3. MICROCONTROLLER IC PIC16F877A

The microcontrollerIC PIC16F877A is used for the processing. The sensors are connected to the microcontroller through serial interface. Some features of microcontrollerPIC16F877A:

Crystal frequency=20MHz

I/O port=5

Operating voltage=5v

DcOperating Current=25mA

VI. CONCLUSION

As seen earlier there was a disadvantage of the seeder nozzles getting blocked due to the mud, stones etc. Hence the seeds were not bowed in the farm, which was not known in the earlier stage. It had come to be known only when the crops were grown up, which was too late. This as a whole affected the average crop yield, which was a big disadvantage.Our prototype, overcomes this disadvantage. We have used an IR sensor which will detect this blockage. As soon as the block is detected the buzzer will turn on the buzzer so that the tractor driver will come to know that he has to stop and the message will be sent from the system to the owner of the farm.Our system is the low cost design which a good advantage. This system uses GSM module which can work only when the system is in range and being the electronic system it may get affected by the environmental changes. These are the disadvantage of our system.

VI. ACKNOWLEDEGMENT

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VII. REFERENCES

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