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Induction Motor Operation Using Remote Sensor

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ABSTRACT

This paper offers thought to drive an induction motor for the required application in forward or alter headings using remote development. This proposed system demonstrates a development to turn a three stage squirrel restrict inducing motor in either clockwise or counter clockwise bearing. It moreover has the obtainment to control the course of the motor using a TV remote. Exactly when a TV remote catch is crushed, it sends an IR signal in RC5 code which is gotten by an IR authority called TSOP-1738. The microcontroller gets the infrared sign from the IR remote, the code of which is perceived by the authority to work a game plan of exchanges. The exchanges switch ON/OFF the correct hand-off to control a three stage activation motor to fulfill fancied trading to hold up under driving supply organize from the essential bending to the partner winding. Yield from the TSOP is supported to a microcontroller of 8052 family which is interfaced to an exchange driver IC. From that point on, the hand-off trading is done by-stable mode for a three stage squirrel bind actuating motor to turn in forward or alter course.

keywords:- Induction Motor; under voltage; Single Phasing; Over Current; Phase Reversal; Microcontroller based protection and control of IM

1. INTRODUCTION

Instigation Motors are all around utilized as a bit of industry on account of their firmness and speed control flexibility. Along these lines, the issue of inducing motor confirmation pulled in various experts. The endeavor uses a three stage squirrel limit affectation motor. It continues running particularly heading in run of the mill condition i.e. right when stage gathering is R-Y-B while the stages are traded the motor starts turning in the other heading. This reversal of power is proficient by two or three exchanges to be particular hand-off 1 and hand-off 2. The Range of the structure is up to 10 meters. The errand can moreover be used to switch ON/OFF electrical contraptions of most compelling weight current of 5A by minor alteration. This proposed structure shows a development to turn a squirrel restrict instigation motor in either clockwise or counter-clockwise course.

It in like manner has the acquisition to control the course of the motor using a TV remote. Exactly when a TV remote catch is pressed, it sends an IR signal in RC5 code which is gotten by IR recipient called TSOP-1738. Yield from the TSOP is supported to a microcontroller of 8052 family which is interfaced to a hand-off driver IC.

3. LITERATURE REVIEW

Different sorts of AC Induction engines are available in the business sector. Distinctive engines are suitable for various applications. Regardless of the way that AC instigation engines are more straightforward to outline than DC engines, the pace and the torque control in various sorts of AC actuation engines require a more prominent comprehension of the setup and the attributes of these engine. At the point when the supply stage is turned around because of wrong association (with the exception of than RYB) because of stage inversion engine begins running in anticlockwise (inverse bearing from ordinary) is distinguished and engine begins running in clockwise heading. On the off chance that R period of Induction Motor is open then flag stage issue is distinguished and engine quit running. In the event that Y period of Induction Motor is open then single stage issue is identified and engine stop to running.If B period of Induction Motor is open then single stage issue is recognized and engine stop to running.

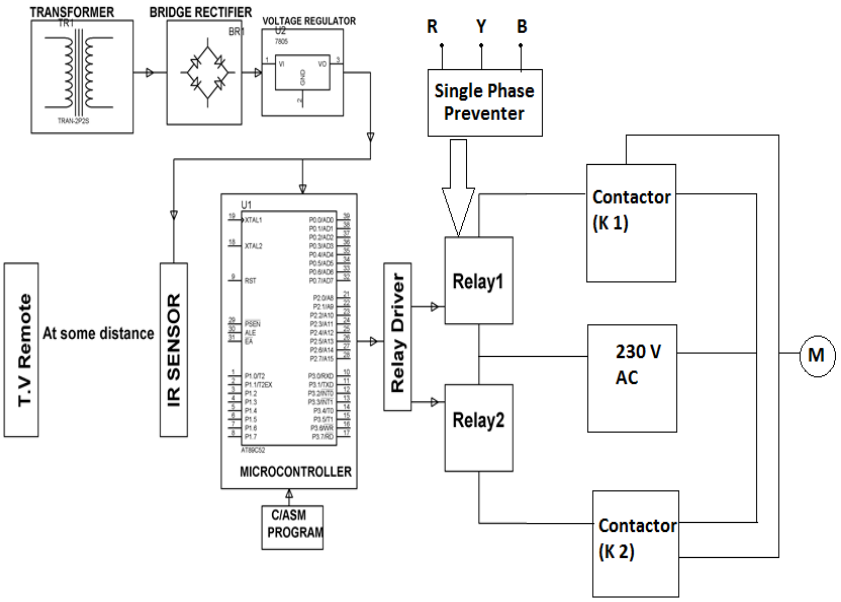
Because of burden in overabundance of wellbeing rating of engine will bring about the over current shortcoming. Along these lines

huge measure of warmth produced in the engine which cause the winding disappointment. The stage inversion happens when two of the three phases(R Y B) of line switches .Most of the engines will respond gravely to such a circumstance engine could all of a sudden start to turn in the wrong heading, bringing on real inadvertent blow-back.

4.LIST OF COMPONENTS

1. Power supply
2. Microcontroller (AT89S52)
3. LED
4. Relay
5. Relay driver-uln2003
6. Contactor
7. IR sensor-TSOP1738
8. Single Phase Preventer
9. Resistors & capacitors
10. Push Button
11. Diodes
12. Transformer
13. Rectifier

5. BLOCK DIAGRAM



6. WORKING

The task utilizes a three stage squirrel confine affectation engine. It keeps running specifically heading in typical condition i.e. at the point when stage grouping is R-Y-B while the stages are interchangedthe engine begins turning in the other bearing. This inversion of force is accomplished by a couple of transfers in particular hand-off 1 and hand-off 2.The period of the supply is associated with the basic of the both transfers while NO contacts of relay1is joined with the contactor (K1) through single stage preventer NO contact and NO contact of relay2 is specifically associated with contactor (K2).

R-Y-B periods of contactor (K1) are associated with the R-Y-B of the supply individually while association of contactor (K2) is changed and joined with R-Y-B of supply. Single stage preventer association is joined with primary supply which keeps the adjustment in stage grouping of the fundamental supply. The

both contactors are associated with engine and unbiased of the contactor is offered back to nonpartisan of single stage supply used to drive all control circuit. Such option operation of the transfers and contactor is accomplished by the project from the MC yield driving the hand-off through IC ULN2003.

One infrared sensor TSOP 1738 is utilized to get the coded signals from a standard T.V Remote. The yield of the TSOP 1738 is associated with pin 10 of the MC. While catch 1 is squeezed from the T.V Remote the legitimate yield from pin no.26 and 27 are such that one and only transfer is exchanged "ON" coming about the engine to run clockwise. While 3 is squeezed from the remote the rationale changes the other transfer works to make the engine runs against clockwise.

7. APPLICATIONS

This model can be utilized to switch the pivot of an engine if there should be an occurrence of progress in stage arrangement (anomalous condition) for watering system reason.

Modern applications contains extensive measure of instigation engines thus we can utilize this procedure for same reason if the revolution is changed because of progress in stage grouping than perfect condition or because of a blunder.

8. CONCLUSION and FUTURE SCOPE

We can utilize this innovation to turn an IM in either clockwise or counter-clockwise heading utilizing IR sensor TSOP-1738 and microcontroller AT89S52 if there should arise an occurrence of stage changing (strange condition).Also we have utilized power supply for fine DC supply for operation of controller utilized which is the principle segment of the operation of this system. The microcontroller gets the Infrared Signal from the TV remote, the code of which is recognized by the IR beneficiary to pivot a squirrel confine incitement engine in either clockwise or counter-clockwise heading.

By doing certain alterations we can make this innovation completely computerized utilizing single stage preventer and some other mechanization types of gear, for example, stage inversion preventer so we can decrease endeavors of changing pivot of affectation engine with the assistance of TV remote sensors.

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