

# ROBOT: A NAVAL ROBOT BOAT FOR REMOTE WAR OPERATION

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**Abstract**— An automated [1] naval boat is designed for remote war operation in water which is directly driven by computer based on the instructions of it's commander using P2P channel [2]. Weapons can be triggered from this boat based on corresponding human command from the backend or according to the scheduled instruction which is installed before the launch of it. Based on the attack of enemy, it has the capability of self destruction which can be termed in the way as suicidal attack to the enemy.

**Keywords**— Android, Cellular Phone, GSM, P2P Connection, Robot

## INTRODUCTION

A naval ship [3] is a ship (or sometimes boat based on the classification) used by a navy. These ships are differentiated from civilian ships by construction and purpose. Generally, naval ships are damage resilient and armed with weapon systems, though armament on troop transports is light or non-existent. Naval ships designed primarily for combat [4] are termed warships which has heavily armed surface and used to engage enemy forces on the high seas, including various types of battleship, battle cruiser, cruiser, destroyer, and frigate.

A robot [5] is a mechanical or virtual artificial agent, usually an electro-mechanical machine that is guided by a computer program or electronic circuitry. Robots can be autonomous or semi-autonomous and range from humanoids to industrial robots, collectively programmed swarm robots, and even microscopic nano robots.

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From the time of ancient civilization there have been many accounts of user-configurable automated devices and even automata resembling animals and humans, designed primarily as entertainment. So the concept of military boat robot is a special kind of electro-mechanical [6] boat with weapons, driven directly by computer, based on human command for remote war operation in water.

Robot is being introduced as a naval robot boat, which has two dedicated electric water pump [7] in it's left and right side for any directional motion in water in XY plane. Also it has a rocket launcher [8], which is the only weapon in it. Here the Communication media is GSM [9]. Thus the P2P communication channel is nothing but the communication of two cellular phones under GSM coverage. Both of the communication modules are under the Android [10] platform. Commander side has the full access of the operational module side meaning the robot side.

## ALGORITHM OF THE PROPOSED ROBOT

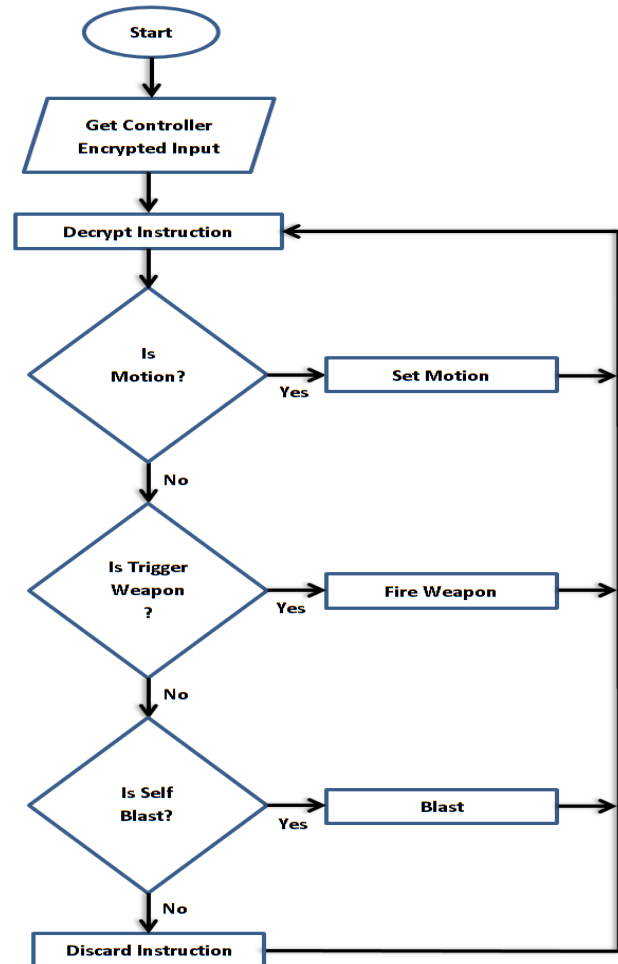
Step 1: Sense a call setup.  
Step 2: If a call is not sensed then wait to receive the call.  
Step 3: If call received, then get caller message and decrypt it.  
Step 4: If call is authenticated then interpret commander side code-word.  
Step 5: Pass the code to code-word-classifier method.  
Step 6: If the code-word is boat-motion then generate appropriate PWM to motor(s).  
Step 7: Send command-execution-status to it's commander.  
Step 8: If the code-word is trigger-weapon then set weapon-angle and fire it.  
Step 9: Send command-execution-status to it's commander.  
Step 10: If the code-word is self-destruction then sense risk.  
Step 12: Send command-execution-status to it's commander with risk level.  
Step 13: If risk is in maximum limit then set self-destruction method.  
Step 14: If risk is other than maximum limit then jump to 'Step 1'.  
Step 15: If code-word is not matched to 'Step 6' or 'Step 8' or 'Step 10' then discard it.  
Step 16: Send command-decapitation-status to it's commander.  
Step 17: Go back to 'Step 1'.

**PSEUDO CODE OF THE PROPOSED ROBOT**

```

CODE 01:      VAR _TRACED, _CALL, _CODE_WORD,
               _WEAPON, _STATUS, _RISK_LEVEL, _DEVICE =
               ROBOAT, _FLAG = DOWN
CODE 02:      DO
CODE 03:      _TRACED = GET_TRACED()
CODE 04:      _RISK_LEVEL = SENSE_RISK_LEVEL()
CODE 05:      _CALL = GET_CALLED()
CODE 06:      IF _CALL != NULL THEN
CODE 07:      _CALL = CODE_DECRYPTER( _CALL )
CODE 08: IF CALL_AUTHENTICATION( _CALL ) ==
TRUE THEN
CODE 09:      _CODE_WORD
= _CODE_WORD_INTERPRETER( _CALL )
CODE 10: IF _CODE_WORD == MATCHINE_MOTION
THEN
CODE 11:      GENERATE_PWM( MOTOR_ONE(
_CODE_WORD ) )
CODE 12:      GENERATE_PWM(
MOTOR_TWO( _CODE_WORD ) )
CODE 13: _STATUS = UPDATE_STATUS()
CODE 14:      _FLAG = UP
CODE 15:      END IF
CODE 16: IF _CODE_WORD == WEAPON_TRIGGER
THEN
CODE 17:      _WEAPON = GET_WEAPON(
_CODE_WORD )
CODE 18:      SET_WEAPON_ANGLE( WEAPON )
CODE 19:      TRIGGER_WEAPON( WEAPON )
CODE 20:      _STATUS = UPDATE_STATUS()
CODE 21:      _FLAG = UP
CODE 22:      END IF
CODE 23: IF _CODE_WORD == SELF_DESTRUCTION
THEN
CODE 24:      _STATUS = UPDATE_STATUS()
CODE 25:      IF _RISK_LEVEL ==
MAXIMUM THEN
CODE 26:      SET_SELF_TERMINATION( _DEVICE )
CODE 27:      END IF
CODE 28: _FLAG = UP
CODE 29:      END IF
CODE 30: IF _FLAG == DWON THEN
CODE 31: _STATUS = UPDATE_STATUS()
CODE 32: END IF
CODE 33:      SEND_STATUS( _STATUS )
CODE 34: _FLAG = DOWN
CODE 35:      END IF
CODE 36:      END IF
CODE 37:      WHILE _TRACED

```

**OPERATION FLOW DIAGRAM:****CONCLUSION:**

Robot could be the replacement of human. And in case of war operation robot could be more reliable where as a military man's life is in maximum risk. Robot program is matter of installation where as a military man may need a training of at least six months, before going to a battle field. Robot is designed only to cover to water. But further research could be done to operate it in both of the water as well as land. And also it's designed to cover over water operation not under of it. But may need to make it invisible to the enemy by going to under the water surface meaning sub-marine. In battle field there is less possibility to get GSM coverage. And also it's not reliable for this kind of operation. So it's mandatory to use direct satellite media to setup the P2P communication channel. The great achievement of Robot is the costing issue. It could the full replacement of a military man, as it's production, operating and life costs in point of financial value are not more than him.

## REFERENCES

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- [3] [http://en.wikipedia.org/wiki/Naval\\_ship](http://en.wikipedia.org/wiki/Naval_ship)
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- [7] [http://en.wikipedia.org/wiki/Water\\_pump](http://en.wikipedia.org/wiki/Water_pump)
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- [9] <http://en.wikipedia.org/wiki/GSM>
- [10] <http://en.wikipedia.org/wiki/Android>



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