

---

# SOFTWARE QUALITY INTERNET CONTROLLED SURVEILLANCE TANK

Haris Tariq<sup>1</sup>, Ayaz Noor<sup>2</sup>

<sup>1</sup>Dept. Computer sciences, Alhumd Islamic university Quetta Pakistan  
[harris\\_1990s@hotmail.com](mailto:harris_1990s@hotmail.com)

<sup>2</sup>Dept. Computer sciences, Alhumd Islamic university Quetta Pakistan  
[ayaz.zehri@gmail.com](mailto:ayaz.zehri@gmail.com)

**ABSTRACT**—Smart mobile robots and collaborative systems for highly collaborative robots can be effective tools for accelerating search and research activities in remote locations. Robots help to perform tasks in environments and situations that are dangerous to man. They can go anywhere inaccessible and can get in the cracks and even it is impossible for trained dogs as well as human being to pass through small hurdle and holes. Our first goal for this project is to build robotic connections to get people alive, control robots through a smart phone or any Internet-connected Internet service. Once the people are positioned, over Wi-Fi technology on smart phone / PC it captured the alerts and rescue team through that visual alerts detect the people and also define different aspects of Software Quality Assurance, ISO-9126, DEFECT PREVENTION, DEFECT REDUCTION, and DEFECT CONTAINMENT.

---

## I. INTRODUCTION

The emergence of up to date high-speed technologies and the growing number of computers have provided a logical opportunity for new control of robots and access to new ways of controlling vision. These technological advancements combined the demand for top performance robots are manufacture rapidly and quick-witted robots using sensors and control devices, improve control algorithms

This Paper is about a live acquisition Controlled Surveillance Tank on an 8-bit motor Driver PIR sensor used to locate living people. The project is mainly used for DEBRIS recovery.

All the above structure is managed by Raspberry pi 2. Motor controller is used to manage motors. It captures signals from PIR sensors and performs the operation of motors that provide sensor input information. An IP dynamic camera will broadcast live state-of-the-art streaming to the smart phone/ PC. The Rover 5 platform robot is used to drive the Surveillance-Tank.

## II. PROBLEM STATEMENT

When the situation is severe in a disaster environment to detect living human is a difficult task and is impossible to locate who need help, injured or living and many of them lose their lives. Disaster management is time consuming to locate by rescue personnel and the impact that occurs due to large area and adverse situation makes it more difficult to detect human. The rescue operations are performed by trained dogs and personage which is very time consuming and risky for those rescuers and as a result we damage precious lives. In the past, our country has faced such incidents, for example, floods, the slipping of the earth.

Our project proposes to help a robotic motorist vehicle travel through a wrecked area and identify living humans. Therefore, timely recovery from natural disasters or without operator referral can save valuable lives and explains the unique aspect of software assurance.

Software quality can include many different features and can be defined and considered differently based on different roles and responsibilities

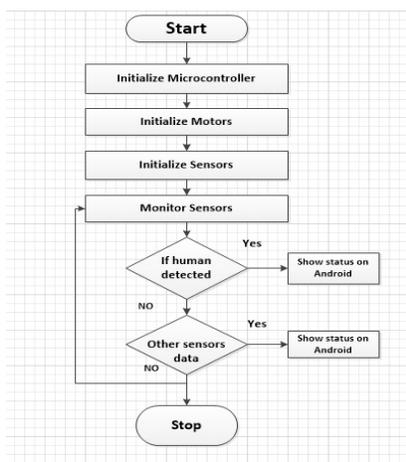
, ISO-9126.

There are six top-level quality assurances:

1. Functionality
2. Reliability
3. Usability
4. Efficiency
5. Maintenance
6. Ability

**proposed algorithm:**

**flow chart**



**algorithm:**

**steps**

1. Start
2. Run the micro controller
3. Run the motors
4. Run the sensors
5. Monitor sensors
6. If the person came to detected Show Status
7. If obstacle came to detected Show status
8. If bomb detected Show Status
9. If fire detected Show status
10. If earthquake detected Show status
11. Monitor sensors
12. Stop

### III. METHODOLOGY

**pir sensor:**

Passive infra-red (PIR) sensors, under specific conditions, will detect the movement of a human within about 10 meters from the sensor. As the living human body releases thermal radiation and input information receive by PIR sensors to identify human. PIR sensors are passive infra-red sensors. The PIR sensor is a pyro electric device that senses motion detecting infrared radiation radiant heat discharge by or reflected from objects. This speed can be observed by examining swift changes in the surrounding IR patterns. When the speed is detected the passive infra-red sensor transmits the communication to a PC / Smart phone using a signal surveillance tank by utilizing Bluetooth technology.

To make the robot more intelligent we are using ultrasonic sensor, metal detector, humidity and temperature sensor, vibration switch module.

**motor driver:**

A motor driver acts as a little current amplifier, some of the added benefits of the motor driver used in that project is to convert to high-current signal to take a low-current control signal that can drive the motor.

**software quality of project:**

**ISO-9126**

**1. functionality:**

- a. Control a Tank from anywhere in the world via Internet
- b. Get live camera streaming via internet and also record it
- c. Get current position of Tank via GPS sensor

**2. reliability**

- a. We can use Remote desktop to check the errors without physically observing the Tank

**3. usability**

- a. communication software is easily understandable for anybody that the tank can be remotely controlled

checked , Frequent Disconnections

#### 4. efficiency

- a. This tank has been built for disastrous locations it can go through any obstacles easily and record the live camera streaming.
- b. Using camera to record, transmit and analyze conditions of human body

#### 5. maintainability

- a. We can use Remote desktop to update and modify the existing code

#### 6. portability

- a. Tank can be controlled from any location through the web browser via internet, therefore, it is completely platform independent

#### defect prevention:

Define SOP and Follow SOP to user Educate to run the platform through Remote Desktop to use the services of Tank and define RCA of each defect that can be occurred. Use formal method to specify the requirement of customer and then verify the product requirement. By using information hiding technique we cannot define each details of codes to customer.it is very unrealistic to expect project or product with 0 bug count.

#### defect reduction:

##### 1. inspection:

###### a. requirement specifications

- i. critical reading and analysis of customer requirements

###### b. designs

- i. Develop the front-end Application (web page)

###### c. test plans and test cases

- i. Different test cases can be made like during disaster a lot of obstacles and video streaming

## 2. testing

### a. black-box testing

- i. In this testing we can test the external operation of the tank
- ii. Like movement of the car
- iii. Like camera streaming

### b. white-box testing

- i. In this testing we can test the internal implementation of the tank
- ii. Like Web IOPI code
- iii. Motion API for camera streaming

#### defect containment:

##### 1. software fault tolerance

###### a. recovery blocks

Repeated executions can be made in our system so that we can check any failure

###### b. NVP

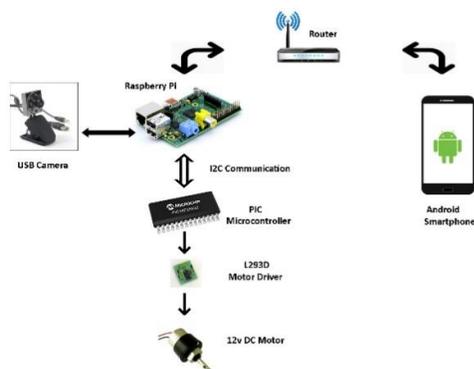
This uses N types of code with different versions

###### c. safety assurance and failure containment

As this system works on internet connection. Slow internet connection or disconnection issues can cause total system failure. Camera streaming uses high bandwidth so we can optimize it by decreasing the pixels like 1080p to 720p it will cause decrease video quality, but it can be tolerated.

## IV. DATA ANALYSIS & RESULTS

For this project to design a webpage that controls both the front-end movement and back end movement of the motor driver robot using computers and Android phones, this will be done by connecting the computer and Android phones to Wi-Fi. The webpage interface can provide and gather information about the operation and detection of motorist tanks. Thus, the address of the living human is shown to the user as a pop-up message on the webpage.



## V. DISCUSSION

This paper has two parts, one Surveillance Tank motor driver section and the other one Internet Controlled section. Robot section sensors about pigeons those are available. Control area metering on the other hand can be seen on Android phones. The robot and control section forward the control unit. The robot is transmitted with motors in this system. Motors control controls. The robots will be involved in various directions joining the jobs. PARAMATER is a consulting post on findings and issued according to the validation derived from the BLUETOOTH module. The computer is valuable, and the computer is transmitted to live in the system, it will tell those who have chosen the three wives to survive.

## VI. CONCLUSION

Therefore, the use of this autonomous vehicle short span of time in a disaster circumstances can save many lives, which makes it useless and useless if it is premature. This motor driver vehicle can be improved and for better detection by utilizing high upgraded sensors and high upgraded capacity motors.

## REFERENCES

- [1] Seethai, A., Azha Periasamy, and S. Muruganand. Rescue Robotics Using Artificial Intelligence.
- [2] Vijayaragavan, Mr. SP, and B. Tech. Live Human Detecting Robot for Earthquake Rescue Operation. International Journal of Business Intelligent 2(1).
- [3] Sharad, Rupnar Pallavi, and P. R. Thorat. Live Human Detecting Robot for Earthquake Rescue Operation.
- [4]. M. Arun Kumar, Mrs. M. Sharmila Wireless Multi Axis ROBOT for Multi-Purpose Operations, Department of ECE, SVCET & JNT University Anantapur, India
- [5] Robert L.Boylestad and Louis Nashelsky(2006) Electronic Devices and Circuit Theory(8).
- [6] Miyama, S.; Imai, M.; Anzai, Y. Rescue Robot under disaster Situation: position Acquisition with Omni-directional.