

HACKATHON

HEWLETT PACKARD ENTERPRISE – KSHITIJ'18

Topic-Automatically Detect & pinpoint the exact location of Sewage Blockage

Team details-

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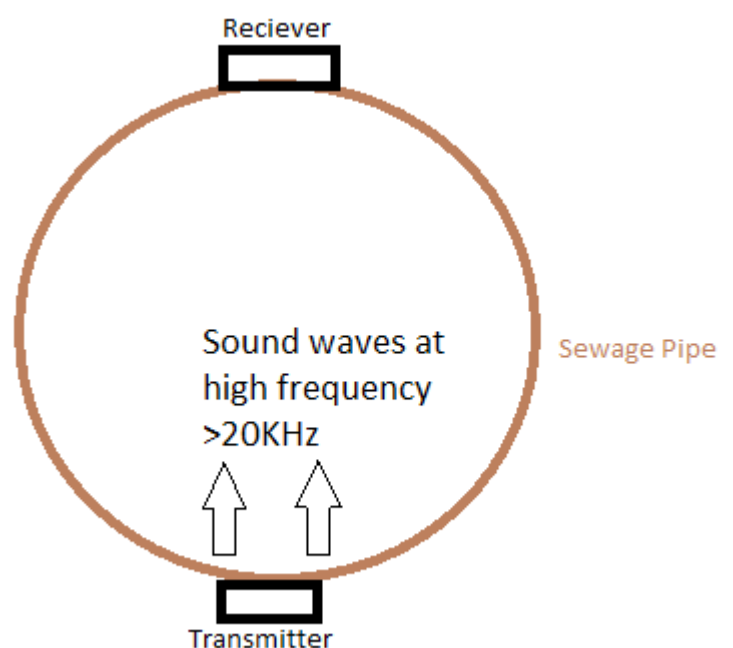
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College – Meerut Institute of Engineering & Technology, Meerut

Idea- Sound travels at different speed in liquid, semi-liquid & gaseous medium. Calculation of time taken for Transmission of sound at high frequency & high amplitude through a sewage pipe can determine how much sewage pipe is filled with actual sewage or there is a blockage (accumulation of large quantity of solid waste, which results in faster transmission).

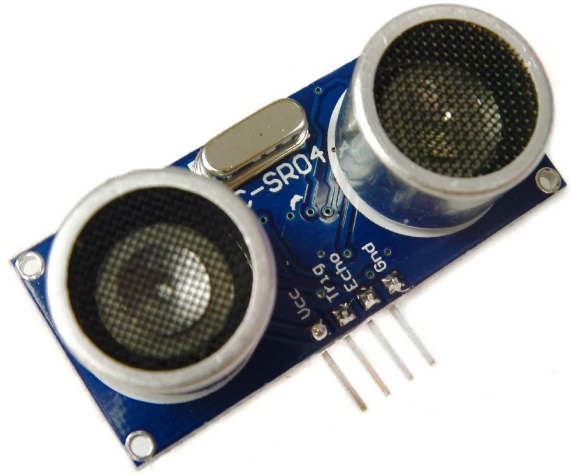
The IoT system consists of

1. large number of Sonar Transmitter & Receiver modules (placed on Sewage pipes),
2. a micro-controller
3. server/cloud computer.



Task of Sonar Transmitter & Receiver-

Transmitter transmit sound at high frequency through sewage pipe when signal is sent through micro-controller & Receiver receives the sound at sends signal to micro-controller which contains information of time delay between sound creation & reception. These modules use very low energy & can be powered through small solar panels on road. These sensors are already available in market .



Micro-Controller-It's task is to regularly scan through all the sensors to check for blockage. Data for normal values will be already saved in program & it will compare the received values from sensor & will alert or send information to hardware/server etc. for notifying the user for blockage. It also use Encoder & Decoder for sending & receiving data. (for example if micro-controller 20 pins spare for sending & receiving values through sensor , it can operate over 2^{10} sensors.)

Server/Cloud- Will act as a center for viewing data, it will receiving data & operating on those data. Some of the task Cloud computer can perform it to predict time - when the sewage will block , or it's vulnerability(rise of too much solid waste) etc.

Thank you