# **ICYEGERERANYO:IKORESHWA RYA WIRELESS IoT TECHNOLOGIES**

## 1.

 **:**ni uburyo bwo guhuza ibikoresho bifatika nk’(imodoka, telephone, ibikoresho byo mu rugo n’ibindi) bikabasha kwegeranya amakuru no kuyoherezanya hifashishijwe imiyoboro idakenera gukoresha insinga. Ibi bikorwa byose bikorwa nta bundi bufasha bwinshi bw’abantu cyangwa mudasobwa zisanzwe.

Iri koranabuhanga rishingiye kuri **sensors**, **software** n’utundi dufasha tw’ikoranabuhanga dutuma ibikoresho bishobora kwandikirana no koherezanya amakuru hagati yabyo.

**Muri icyi cyegeranyo cyacu cyihariye kuri Internet of things tugiye kurebera hamwe :**

-Ibiranga IoT Wireless Technologies.

## - Aho IoT Wireless Technologies Zikoreshwa.

## -Ibigize IoT Wireless System(IOT COMPONENTS).

## -Ibyiza n’Ibibi by’Ikoranabuhanga rya IoT.

- Icyerekezo cya IoT.

Ndetse nibindi .Ndakwiginze nkurikira witonze dutangire.

## 2. Ibiranga IoT Wireless Technologies

**.Gusangira amakuru**: hifashishwa imiyoboro itandukanye nka (Wi-Fi, ZigBee, LoRa Bluetooth Low Energy n’ibindi).

**.Kugabanya ingufu zikoreshwa**: hari uburyo bushya nka **Low Power Wi-Fi** cyangwa **LPWAN** bugamije gukoresha ingufu nke cyane.

**.Ikoreshwa henshi:** imiyoboro imwe ikoreshwa mu rugo, indi mu nganda, indi mu mijyi (Smart City).

## 3. Aho IoT Wireless Technologies Zikoreshwa

**.Mu rugo**: IoT ifasha mu gutunganya ibikorwa by’ubuzima bwo mu rugo bwa buri munsi.

Urugero: **Smart TV** zihuza n’Internet zikazana porogaramu zitandukanye; **Smart Home** zigufasha gucana cyangwa kuzimya amatara, kugenzura ingufu, no kurinda umutekano ukoresheje telefoni cyangwa ijwi.

**.Imodoka**: IoT ikoreshwa mu **GPS tracking** kugira ngo imodoka ikurikiranwe aho iherereye, ndetse na **Engine monitoring** igenzura uko moteri ikora, bigafasha mu kurinda impanuka no kugabanya igiciro cy’ubukanishi.

**.Ubuvuzi**: Ibikoresho by’ubuvuzi nka **smart pacemakers** bigenzura umutima kandi bikohereza amakuru kwa muganga; **remote patient monitoring** ituma abaganga bakurikirana abarwayi batiriwe baza buri gihe ku bitaro.

**.Inganda**: Mu nganda, IoT ikoreshwa muri **automation** nko kugenzura imashini zikora mu buryo bwikora (robots), no kugenzura inzira z’imikorere ya mamashine (**process control**) ku buryo bukora neza kandi bwihuse.

**.Ubuhinzi n’imijyi**: IoT ikoreshwa mu **smart farming** aho igenzura ubutaka, ubushyuhe n’ubwiza bw’amazi; no muri **Smart City sensors** zigenzura umutekano, amatara yo ku mihanda, itwara ry’amazi n’imyuka ihumanya.

## 4. Ibigize IoT Wireless System(IOT COMPONENTS)

**.Sensors**:nizo maso n’amatwi byegeranya amakuru nk’ubushyuhe, umwuka, urusaku biri guturuka muri environment.

**.Network Modules**: niyo mitsi ya system itwara amakuru.nka Bluetooth module , Wi-Fi module, ZigBee modules ndetse nizindi.

**.Processors**: ni “ubwonko” bwa system ya IoT. yakira amakuru yoherejwe na sensors, ikayasesengura, kandi igafata ibyemezo.

**.Cloud Platforms**: ni seriveri ziri ku murongo wa internet zishinzwe kubika, guprocessinga no kugarura amakuru yoherejwe n’ibikoresho bya IoT.

**.Applications**: ni software zikoreshwa kugira ngo umuntu ashobore kubona amakuru cyangwa kugenzura ibikoresho bya IoT mu buryo bworoshye.

## 5. Ibyiza n’Ibibi by’Ikoranabuhanga rya IoT

## Ibyiza:

.Kugabanya umurimo w’abantu (automation).

.Kworoshya itumanaho ry’ibikoresho.

.Gukoresha ingufu nke z’amashanyarazi.

.Gukwirakwira no gukoreshwe mu nzego zitandukanye (ubuzima, inganda, ubuhinzi, imijyi).

### Ibibi:

.Ubushobozi buke mu butekano.

.Intera ngufi ku miyoboro imwe nka (Wi-Fi, Bluetooth).

.Umuvuduko wo kohereza amakuru ugira imipaka.

## 6. Ejo hazaza ha IoT

* ni ugukomeza kuba umutima w’iterambere ry’ikoranabuhanga rigezweho, aho ibintu bisanzwe (ibikoresho byo mu rugo, imodoka, inganda, imijyi n’ubuhinzi) bigenda bihuzwa ku murongo wa internet kugira ngo bikorane neza kandi byorohereze ubuzima bwa muntu. IoT izakomeza gufasha mu kongera umusaruro w’inganda no gukoresha neza umutungo, guteza imbere imijyi (Smart Cities) ikoreshwa rya sensors mu gucunga amatara, umutekano n’imodoka, no guteza imbere ubuhinzi bushingiye ku makuru yegeranywa ku butaka n’ikirere. Mu gihe kizaza, IoT izarushaho gufatanya n’ubwenge bw’ubukorano (AI) kugira ngo habeho sisitemu zishobora gufata ibyemezo byihuse kandi by’ubwenge, mu gihe umutekano (cybersecurity) uzaba urufunguzo rwo gukora imiyoboro yizewe kandi ihamye. Bityo, IoT iri mu cyerekezo cyo guhindura isi aho buri kintu cyose kizaba gifite ubushobozi bwo gutanga amakuru, kuyakira no kuyasesengura mu buryo bworoshye kandi bufatika.

## 7. Umusozo

IoT Wireless Technologies ni urufunguzo rwo guhuza ibikoresho byo mu buzima bwa buri munsi n’ubwenge bw’ikoranabuhanga. Uhereye kuri **BLE** (**Bluetooth Low Energy**.)ikoreshwa mu bikoresho biri physical, **Wi-Fi** ikoreshwa mu ngo, kugeza kuri **LPWAN(Low Power Wide Area Network**.**)** ikoreshwa mu mijyi n’inganda, buri teknologi igira uruhare rwayo.

Kugira ubumenyi ku mikorere y’iyi miyoboro, ku byiza byazo n’aho bigera, ni intangiriro nziza ku muntu wifuza gusobanukirwa **Internet of Things (IoT)** no kwinjira mu bukungu bushingiye ku ikoranabuhanga.

**Murakoze!**